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SRB TECHNOLOGIES (CANADA) INC.

Nuclear Substance Processing Facility Operating Licence Renewal Application

September 8, 2014

Submitted to: Marc Leblanc, Secretariat
Canadian Nuclear Safety Commission

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Statement of Application for Licence to Operate Class 1B Nuclear Facility

As the officer in charge and part owner of SRB Technologies (Canada) Inc., I, Mr. Stephane Levesque, President, hereby make application to the Canadian Nuclear Safety Commission for renewal of licence for SRB Technologies (Canada) Inc. as a Class 1B Nuclear Facility:

Name:	**Stephane Levesque**
Title:	**President**
Company:	**SRB Technologies (Canada) Inc.**
Signature:	
Date:	September 8, 2014

Introduction

On June 30, 2015, Nuclear Substance Processing Facility Operating Licence NSPFOL-13.00/2015, issued to SRB Technologies (Canada) Inc. by the Canadian Nuclear Safety Commission (CNSC), will expire.

On May 23, 2014, SRBT received correspondence [1] from the Director, Nuclear Processing Facilities Division, informing of the requirements and expectations regarding the information that should be included with an application for renewal. It was accepted that a renewal application be received no later than September 8, 2014 [2].

This document, including all referenced appendices, hereby forms the application for renewal of the Nuclear Substance Processing Facility Licence for SRB Technologies (Canada) Inc. It has been developed in close consideration of the guidance contained in the aforementioned letter, and is intended to fully meet the legal requirements of the *Nuclear Safety and Control Act,* and regulations pursuant to this Act.

A reference matrix {40} is included with the application document, in order to demonstrate how each specific requirement and expectation has been met with respect to applying for renewal of the NSPFOL.

The application is submitted in five parts:

Part I contains general information supporting the application which is administrative or legal in nature, and does not necessarily fall under a particular Safety and Control Area (SCA).

Part II captures information in the SCAs which fall within the Functional Area of 'Management', including:

- Management System
- Human Performance Management
- Operating Performance

Part III captures information in those SCAs which fall within the Functional Area of 'Facility and Equipment', including:

- Safety Analysis
- Physical Design
- Fitness for Service

Part IV captures information in those SCAs which fall within the Functional Area of 'Core Control Processes', including:

- Radiation Protection
- Conventional Health and Safety
- Environmental Protection
- Emergency Management and Fire Protection
- Waste Management
- Security
- Packaging and Transport

Part V includes any other information deemed necessary to support this application. This includes the information requested under 'Other Matters of Regulatory Interest' in the letter dated May 23, 2014 which is not previously addressed.

SRBT is requesting a licence with a term of 10 years. The term of the licence is crucial to many aspects of our operations.

This request is based upon our positive compliance history, our experienced staff and mature key health and safety programs, and the success of our emission-reducing initiatives.

Based on our positive compliance history

We believe that we have demonstrated that we have operated the facility in the safe manner during the licence term of 5 years. During the licensing period, there were no action level exceedances or significant safety-related events.

Throughout the term of the licence air emissions (HTO + HT) were maintained at less than 18% of the licence limit.

Emissions to sewer were less than 6% of the license limit.

The maximum annual dose received by any person employed by SRBT was less than 2 mSv and well within the regulatory limit for a nuclear energy worker of 50 mSv per calendar year.

The maximum annual dose received by any member of the public as a result of emissions from SRBT is well within the regulatory limit of 1,000 µSv per calendar year. Based on environmental monitoring results the maximum dose to a member of the public as a result of the emissions from SRBT over the term of the licence have been less than 7 µSv.

Only a single lost time injury has occurred during the current licensing term as a result of an injury that occurred during the machining process in Zone 1, where no tritium is handled or processed.

Based on our stable and experienced workforce

Over the licence term our staff increased from 15 to 40 employees. All but one employee that was employed when the licence was issued in July 2010 are working in the exact same positions. New staff with expertise and qualifications in areas of safety and nuclear safety were added to our organization which had a direct impact in further increasing nuclear safety at the facility, and a positive impact on ensuring that our operations continue to remain safe and compliant, that worker exposures remain as low as reasonably achievable, and that SRBT continues to ensure the protection of workers, the public and the environment.

By the end of 2013 our workforce had an average experience of just under 8 years with an average age of just over 39 years of age. The six members of the Health Physics Team had an average work experience of just under 16 years with the company for a combined 94 years of work experience directly with the company. The company is now wholly-owned by the President Stephane Levesque and Vice President Ross Fitzpatrick who are Canadian residents, reside locally and have a full time hands on role at the facility and together have more than 40 years of experience in the manufacture of tritium light sources and devices.

Based on our mature key health and safety programs

Since the last licence renewal application was submitted, most programs and subordinate processes have undergone some form of review, improvement or revision.

As another testimony to the performance of our health and safety programs as of September 8, 2014, only one CNSC-issued inspection action remains open (SRB-2014-04-10-A1), and a response anticipated to justify closure of this action is due to be submitted by October 31, 2014. This action has been evaluated by CNSC staff as not posing an unreasonable risk to the environment or the health and safety of persons.

Based on the success of our emission-reducing initiatives

Despite having increased tritium processed by 4.5 times between 2010 (6,643 TBq) and 2013 (30,544 TBq), atmospheric emissions have risen at less than half of that rate. Emission reduction initiatives have been successful in reducing the ratio of tritium released to atmosphere versus processed from 0.55% in 2010 to 0.26% in 2013. To date in 2014, this ratio is less than 0.20%. This ratio was as high as 1.70% in 2008.

Based on public perception

An appreciable amount of information has been disseminated to the public over the licence term, and information is routinely updated and available on our web site. There has been very little concern expressed by the public over the licence period.

Despite these results to date, SRBT is fully committed to increase its public information initiatives with a 10 year licence period.

As part of our revised Public Information Program, we will ensure that regular public input is facilitated and considered in lieu of hearings by having regular meetings with all stakeholders as required and by continuing to allow a flow of information between parties. A 10 year term would also give the general public more confidence in SRB's ability to continue to protect our workers, the public and the environment.

A 10 year licence term is crucial to many aspects of the operations in order to continue to grow or maintain the current business in a sustainable fashion, and to continue to offer quality products to our customers and operate the facility in a continuously safe and compliant fashion.

Crucial in allocation resources

A 10 year licence term will allow resources that would otherwise be dedicated to relicensing to be dedicated to researching technological advancements to further reduce the ratio of tritium that is released to the environment during routine processing.

Experience has shown that resources must be allocated to the relicensing process which could otherwise be allocated to identifying ways to reduce emissions, strive towards lower staff doses, and numerous other important initiatives and requirements.

Crucial in attracting and retaining qualified staff

Company growth is sustained through the addition of more qualified staff. Although SRBT has been successful in retaining its employees, a longer term licence provides even more confidence to current and prospective staff that their employment is stable.

The pool of available qualified staff to our facility could present a challenge given industry and demographical shifts in the area. Experience has demonstrated that it is can be challenging to attract and retain qualified staff with shorter term licenses. A 10 year licence would provide staff more job security and greatly facilitate the hire of new staff to support growth or to fill a vacant position.

Crucial in securing long term contracts

The stability offered by a 10 year licence would also further ensure SRB's ability to secure long term contracts with customers and suppliers. Experience has demonstrated that customers and suppliers are less willing to sign contracts beyond a licence term.

Long term contracts with our customers can allow SRBT provide them with fixed pricing and more accurately forecast sales, which is crucial in planning purchases and in turn dedicate a fixed part of its revenue to emission reduction initiatives.

Likewise, long term contracts with our suppliers can allow SRBT to more accurately forecast costs and in turn dedicate a fixed part of revenue to emission reduction initiatives.

Crucial in securing financing

Experience has shown that financial institutions will be more willing to provide financing should the facility be licensed for a period of ten years as this would provide assurance that the facility will be operating thereby generating revenue over that period.

The financing to help introduce and fund further emission reduction initiatives and the purchase of modern safety equipment, radiation and environmental protection equipment and tools would be facilitated with a 10 year licence term.

Furthermore the financing of external training opportunities will be facilitated which will contribute to safety. Management and workers will participate in external training courses, conferences and conventions where a safety benefit can be realized.

Financing opportunities would provide further assurance that the decommissioning fund will reach its full value.

CNSC Staff can be assured that the current vision for the operation of the facility over a 10 year licence term and in the future does not significantly deviate in strategy from the operations that have occurred during the current licence period, or for the coming period. The facility will continue to be safe over the period of 10 years.

Based on the discussions contained in CMD-02-M12, CMD-02-M12.A and CMD02-M63, SRBT believes that a licence term of 10 years would be beneficial, appropriate, and justified.

IMPORTANT NOTE:

Numbers in [square brackets] are intended to guide the reader to a referenced document; these are listed on page 51 of the application.

Numbers in {braces} are intended to guide the reader to a document included as an appendix to this application; these documents are listed on page 53 of this application.

1.0 General Information Supporting the Licence Renewal Application

1.1 Applicant Name and Business Address

SRB Technologies (Canada) Inc. ("SRBT")
320-140 Boundary Road
Pembroke, Ontario, Canada
K8A 6W5

1.2 Activity to Be Licensed

The activity to be licensed is identical to the activity of the current licence:

(a) operate a nuclear substance processing facility.
(b) possess, transfer, use, process, manage, and store the nuclear substances that are required for, associated with or arise from the operation of the facility.
(c) possess a maximum of 6,000 TBq of tritium in any form.

The purpose of the activity is the same as the purpose for the current licence; namely, to provide lighting technology for various lighting applications.

1.3 Nuclear Substances to be Encompassed by the Licence

The following nuclear substances are to be encompassed by the renewed licence, with maximum quantities and form listed where applicable:

- Tritium (Hydrogen-3), elemental form, total including in sealed and unsealed sources up to 6,000 TBq;
- External quench standards used as an internal component of commercially-procured liquid scintillation counting devices, which are typically less than exemption quantities of various isotopes such as Ba-133 or Eu-152;
- Depleted uranium in metallic form for the use in tritium traps used during the course of production. Maximum quantity of this substance not to exceed 10,000 grams. Current inventory breakdown as follows (current as of August 1, 2014):

Table 1-1: Depleted Uranium Inventory

QTY	DESCRIPTION	DEPLETED URANIUM IN EACH (grams)	TOTAL DEPLETED URANIUM (grams)
1	Loose form		3,275
9	Active P.U.T.T.	30 +/- 1	272
40	Non-active P.U.T.T.	30 +/- 1	1,206
1	U-bed	240	240
4	AMERSHAM containers (0666AY)	405	1,620
2	AMERSHAM containers (3605D)	320	640
1	P.U.T.T. (uranium stuck in base)	17	17
		TOTAL	**7,270**

1.4 Persons with Authority to Act for SRBT in Dealings with the Commission

- The President of SRB Technologies (Canada) Inc. Stephane Levesque and the Vice President of SRB Technologies (Canada) Inc. Ross Fitzpatrick, both have the authority to act for SRB Technologies (Canada) Inc. in their dealings with the Commission.
- The President of SRB Technologies (Canada) Inc. Stephane Levesque is responsible for the management and control of the licensed activity and the nuclear substance, nuclear facility, prescribed equipment or prescribed information encompassed by the licence. Also note that in accordance with our organizational duties the Vice President of SRB Technologies (Canada) Inc. Ross Fitzpatrick assumes full duties of the President in his absence.
- The information referred to in paragraphs (a) and (b) has remained consistent throughout the current licence term.

1.5 Evidence of Authority from Owner of the Site

As SRBT leases the area housing the facility, a letter of authority from the owner of the site has been provided as part of the licence application, in order to fulfill this requirement.

This letter is included as Appendix {01}, as evidence that the owner of the site continues to be knowledgeable of the nature of our operations, and authorizes SRBT to conduct activities licensed by the Commission.

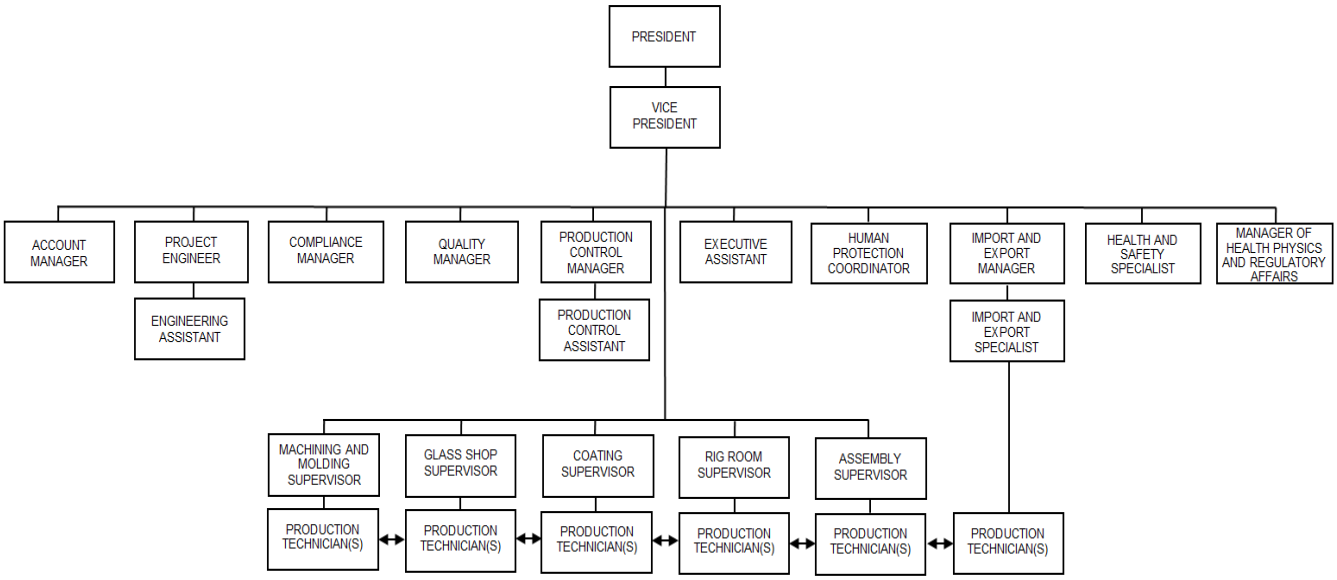
2.0 Functional Area: Management

2.1 SCA - Management System

Organizational Structure:

Insofar as it may bear on the compliance of SRBT with the Nuclear Safety and Control Act (NSCA), the Regulations made pursuant to the NSCA, the internal allocation of functions, responsibilities and authorities are as follows. Reporting relationships are graphically represented here:

Figure 2-1: Organizational Structure



The organizational structure of SRBT, including positional responsibilities and authorities, is described in the following references:

- SRBT Quality Manual {03}
  - QM-002, 'Authorization'
  - QM-003, 'Company Organization'
  - QM-006, 'Management Responsibility'
- SRBT Radiation Safety Program {06}
  - Section 2.2, 'Roles, Responsibilities and Qualifications'

SRBT management is responsible and accountable for compliance with the NSCA and associated regulations, with the ultimate accountability being held by the President.

Organizational Changes Over the Current Licensing Term:

In October 2012 the General Manager position was renamed Vice President to clearly demonstrate the authority of this position on other Management and to further reinforce that the individual holding this position will assume full duties of the President in their absence, and otherwise assist the President in their duties.

On November 19, 2012 a new position of Import and Export Specialist was added to the organization. The Import and Export Specialist is mainly responsible for assisting the Import and

Export Manager. In order to ensure more coverage in the event of prolonged absence of the Import and Export Manager and during times of high workload, Senior Management decided to add this new position. The Import and Export Specialist is mainly responsible for assisting the Import and Export Manager with receipt and authorizing receipt of tritium, tritium sources and products containing tritium sources, maintain accurate tritium inventory records, prepare, submit and maintain all import and export permits and transport and documentation of shipments that contain tritium.

On May 1, 2013 a new position of Health and Safety Specialist was added to the organization in order to provide more focus and emphasis on Conventional Health and Safety. The individual in this position has received external training in various aspects of Health and Safety and has almost six years of work experience working in different positions at SRB.

On May 24, 2013 the Fire Protection Committee added another member. This employee has been employed at SRB for over two years and has now become a volunteer firefighter for the Municipality of l'Isle-aux-Allumettes, and will thereby be enrolled in a Fire Fighter 1 course. Between September 2 and 4, 2013 this same individual also successfully completed Ontario Fire Code Inspection Training from Nadine International Inc. a Fire Protection Consultant with experience with a number of other CNSC Licensees.

On September 16, 2013 a new position of Project Engineer was added to the organization. The individual in this position has a bachelor of engineering from an accredited Canadian University and has almost two years of work experience working at another major CNSC-licensed facility. The Project Engineer is mainly responsible for research and development activities and for maintaining engineering documentation to ensure that customer requirements, requirements of the NSCA, Regulations, conditions of the licence and ISO 9001: 2008 are met. The Project Engineer is also responsible for the design and implementation of the Maintenance Program to ensure that requirements of the NSCA, Regulations and conditions of the licence are met.

On October 28, 2013 in order to ensure more coverage in the event of prolonged absence of the Production Control Manager and during times of high workload a new position of Production Control Assistant was added to the organization. The Production Control Assistant is mainly responsible for assisting the Production Control Manager with processing of customer purchase orders, providing in advance of receipt Import and Export Manager details on receipt and purchases of tritium, tritium sources and products containing tritium sources to ensure compliance with the NSCA, Regulations and conditions of the licence. The Production Control Assistant is also responsible for assisting Production Control Manager and the Import and Export Manager in the tabulation and the review of the month end tritium inventory.

On April 1, 2014 Senior Management decided to create a new position of Compliance Manager to the organization. The Compliance Manager is partly dedicated to performing independent internal audits and further ensuring compliance of all work areas with company programs and procedures. This is an entirely new management position reporting directly to the President. This individual has formal training in auditing and has been employed at the facility for over 17 years in various capacities. This individual is being trained by a consultant with over thirty years of experience performing inspections and audits with the Canadian Nuclear Safety Commission.

On April 1, 2014 a new position of Manager of Health Physics and Regulatory Affairs was added to the organization. This individual holds a bachelor of science degree from an accredited Canadian University, and brings over 13 years of experience working in the field of radiation protection and health physics, as well as over 5 years of experience in the field of nuclear safety regulation and inspection. The Manager of Health Physics and Regulatory Affairs is mainly responsible for oversight of all company Health Physics activities to ensure that the requirements of the Nuclear Safety and Control Act (NSCA), Regulations, conditions of the licence and ISO 9001 are met, and is also responsible for communicating with the Canadian Nuclear Safety Commission Staff (CNSC) and ensuring that deadlines for submission of responses and documents are met.

On April 1, 2014 a full time third-party consultant was hired with over thirty years of experience with the Canadian Nuclear Safety Commission, in order to provide training and mentorship to key staff, as well as technical support on special projects and activities as required by Senior Management.

Each one of the above noted improvements in our organization has a direct impact in further increasing nuclear safety at the facility, and a positive impact on ensuring that our operations continue to remain safe and compliant, that worker exposures remain as low as reasonably achievable, and that SRBT continues to ensure the protection of workers, the public and the environment.

SRBT has successfully grown the business in a sustainable and controlled fashion throughout the licensing period. Staffing levels have risen in step with production gains, while continuing emission reduction initiatives have been effective in ensuring that our effect on the environment and the public remains minimized, well below regulatory requirements, and as low as reasonably achievable at all times.

The activities of three work areas (marked in yellow in Table 2-1) do not involve tasks that affect Nuclear Safety. The 11 employees hired as Production Technicians were appointed to one of these three work areas. These positions do not in any way impact the company's ability to ensure that the requirements of the Nuclear Safety and Control Act, Regulations and conditions of the licence are met.

Table 2-1: Nuclear Safety Tasks Performed per Work Area

WORK AREA	AVERAGE YEARS EXPERIENCE	RESPONSIBLE FOR PROGRAMS AND PROCEDURES THAT AFFECT NUCLEAR SAFETY	PROCESS TRITIUM	HANDLE TRITIUM SOURCES
ADMINISTRATION	13.22	X		
RIG ROOM	8.20		X	X
GLASS SHOP	6.76			
ASSEMBLY	5.50			X
MACHINING & MOLDING	4.77			
COATING	3.46			

The Rig Room is the department where tritium processing takes place, and has the highest average work experience with the company of any production department. The average work experience of the staff within this department is just over 8 years. The Supervisor and another employee in this department have over 22 years of experience and perform or oversee all activities that involve tritium processing or handling of tritium sources.

The Assembly Department is where tritium sources are handled by staff for assembly into products or for packaging. The tritium is contained in the source at this stage and the possibility of tritium exposure is low. The Supervisor in this department has almost 15 years of experience and performs or oversee all activities of only two other staff members.

It is also important to note that staff in management and supervisory positions already has experience being in charge of this number of employees. Overall staffing levels and staffing levels in each department are within those between 2000 and 2006 where current Management and Production Supervisors were in the same positions.

An increased number of short informal meetings took place in 2013 to ensure communication was maintained primarily to ensure new staff did not decrease the level of safety at the facility. Formal committee meetings were reserved for more significant decision making and matters.

Senior Management made a point to visit each work area on a daily basis and to speak to most staff about their work and to see if any issue needed resolving.

Changes in Information Previously Submitted:

Since the last licence renewal application was submitted, most programs and subordinate processes have undergone some form of review, improvement or revision, as would be expected in any organization that has continuous improvement as a mission statement.

All programs that were in place at the time of last renewal in 2010 continue to remain in place and effective. SRBT has committed [3] to analyze and ensure that our management system complies with CSA Standard N286-12, *Management System Requirements for Nuclear Facilities.* A gap analysis between the requirements of this standard and the current SRBT management system is included with this application as Appendix {02}. This includes an implementation plan to align the management system with the requirements of this standard.

SRBT has begun developing a program for training of key staff, which once implemented, will follow a Systematic Approach to Training (SAT) [4]. Once this program is fully developed and implemented, SRBT will be able to demonstrate compliance with REGDOC 2.2.2 – *Personnel Training,* published by the CNSC in August 2014. Please see section 2.2 of this application for more detailed information on this initiative.

The Fire Protection Program is currently undergoing an assessment [5] to determine gaps in compliance with newly released CSA Standard N393-13, *Fire Protection for Facilities that Process, Handle or Store Nuclear Substances.* If significant gaps in compliance exist, a program revision may be performed before the new licence comes into effect. The gap analysis is due to be submitted no later than October 31, 2014.

A new set of processes focused on ensuring quality results from our liquid scintillation counting (LSC) laboratory are being developed and implemented. These will be managed as a key component of the Radiation Safety Program procedure set.

Programs or key processes that have been revised and submitted to CNSC staff include:

- Quality Assurance Manual, revised September 12, 2014 and submitted with this application;
- Radiation Safety Program, revised three times:
    - Revision IX, dated October 7, 2011
    - Revision X, dated May 25, 2012,
    - Revision XI, dated September 12, 2014, submitted with this application;
- Maintenance Program, dated July 24, 2012;
- Fire Protection Program, dated February 14, 2013;
- Emergency Plan, dated February 14, 2013
- Public Information Program, dated July 31, 2014

In addition, by the end of the first calendar quarter of 2015, the following programs or key processes are planned to undergo revision:

- Waste Management Program
- Environmental Monitoring Program
- Facility Security Program
- Preliminary Decommissioning Plan

During the current licensing period, SRBT underwent a transfer of ownership. The company is now wholly-owned by a partnership of Canadian citizenship and residence, which together have more than 40 years of experience in the manufacture of tritium light sources and devices.

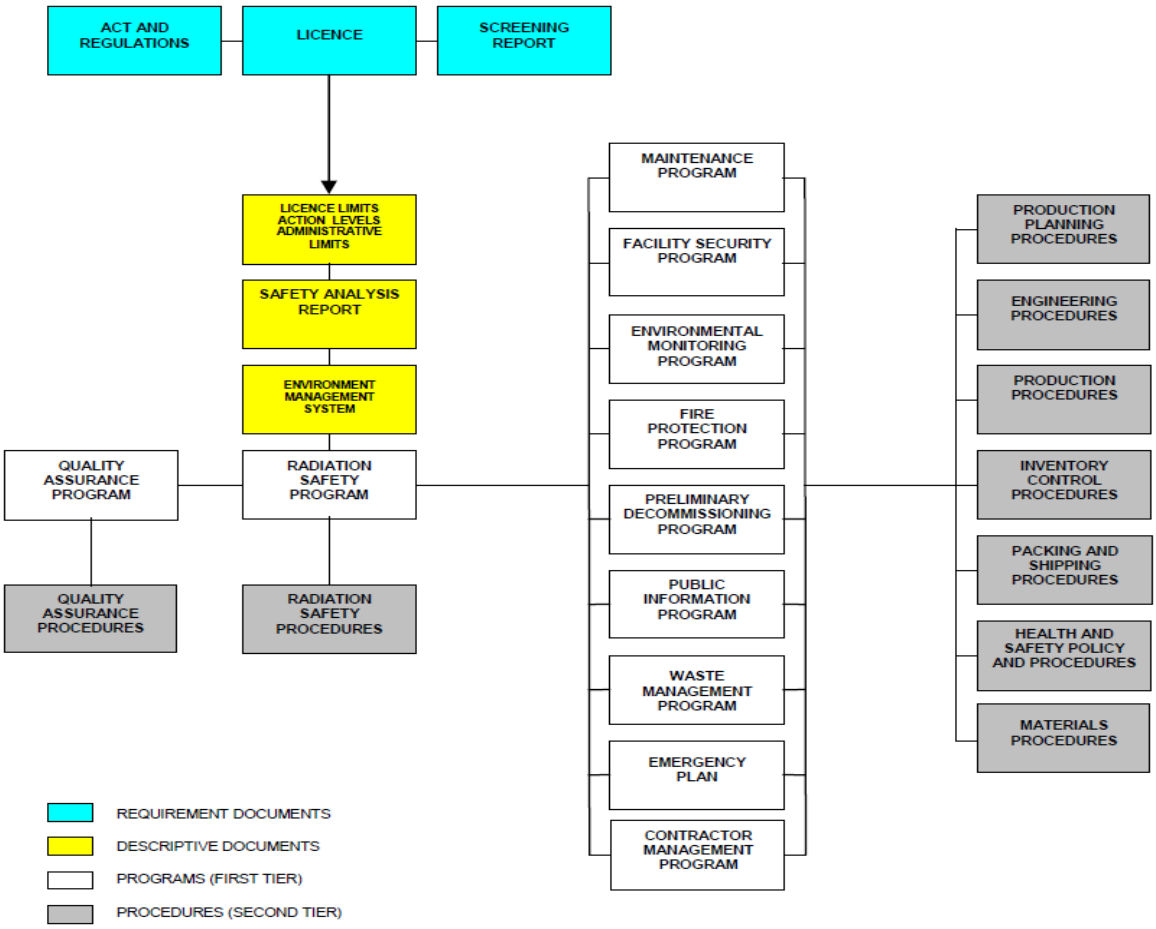
Proposed Quality Assurance Program

The quality assurance program for the activity to be licensed is described in the SRB Technologies (Canada) Inc. document 'Quality Manual', Revision H, dated September 12, 2014. This document is provided as Appendix {03}.

Proposed Measures, Policies, Methods and Procedures – Management Systems

The SRBT management system document structure is graphically depicted here (as described in QM-005, *Quality Arrangements)*:

Figure 2-2: Management System Document Hierarchy and Structure



The above structure represents virtually all of the proposed measures, policies, methods and procedures that are required by regulation to be submitted as a part of a licence to operate a Class I nuclear facility.

A listing of programs and subordinate approved procedures is included with this application {04}.

The primary policy document that describes how SRBT manages the activities licensed by the CNSC is QM-001, *Quality Policy.* In this quality procedure document, the corporate vision, mission statement, goals, values and policy are stated in clear language, and these policies and principles govern all company activities.

Safety programs are typically supported by a committee. The following are the committees currently convened that support SRBT senior management in ensuring a high level of quality, safety and compliance in all safety areas, as well as manufacturing and business goals:

- Executive
- Workplace Health and Safety
- Health Physics
- Fire Protection
- Waste Management
- Production
- Mitigation
- Public Information
- Training

Authorities for making decisions in all areas are defined within QM-002, *Authorization,* as well as individual job descriptions that are included in QM-003, *Company Organization,* and the Radiation Safety Program.

Additional information on the SCA of Management Systems can be found in Part V, as part of the information requested as ‘Other Matters of Regulatory Interest’.

2.2 SCA – Human Performance Management

The set of qualification and training processes for operating personnel has traditionally been defined in the following programs and processes:

- Section "7.2 Staff Recruitment, Qualification and Training" in the SRB Technologies (Canada) Inc. Safety Analysis Report (Revision II), dated July 4, 2006 provides a general description of qualification requirements. This document is included with this application {05}.
- Responsibilities of and qualification requirements and training program for workers were discussed in an Organizational Study, dated July 31, 2007.
- Responsibilities of and qualification requirements for workers are outlined in section "2.2 Roles, Responsibilities and Qualifications" of the Radiation Safety Program {06}.
- Key elements of the training program and requirements are also outlined in section "4.1 Radiation Safety Training" of the Radiation Safety Program {06}.
- Responsibilities for workers are outlined in section "QM-003 Company Organization" of the Quality Manual {03}.
- Training of operating personnel is described as well in section "QM-023 Training" of the Quality Manual as well as within procedure ENG-011, "Training".

Roles, responsibilities and duties of workers at SRBT are well documented within job descriptions, as well as in the following management system documents:

- SRBT Quality Manual
    - QM-003, 'Company Organization'
    - QM-006, 'Management Responsibility'
- SRBT Radiation Safety Program
    - Section 2.2, 'Roles, Responsibilities and Qualifications'

Roles, responsibilities, duties and qualifications are further defined with respect to Radiation Safety in an organizational management structure listed in section "2. Management Structure and Responsibilities" and sub sections "2.1 Health Physics Staff" and "2.2 Management Structure", of the Radiation Safety Program {06}.

As of the end of 2013, the entire set of the SRBT workforce possessed an average experience level in the facility of approximately 8 years at the facility.

The members of the Health Physics Team had an average experience level of nearly 16 years, amounting to a cumulative work experience of 94 person-years, directly with the company. This team is a key organizational subset that ensures a high level of radiation safety, environmental protection and contamination control at all times in the facility.

Recruitment initiatives have been highly successful. New employees that have been hired as operating personnel have been very successful in undergoing and successfully completing facility training, and high levels of achievement have been consistently noted during periodic retraining and testing in key safety areas. These initiatives are described in the Radiation Safety program {06}.

Beginning in the summer of 2014, SRBT began the process of developing a training and qualification program which complies with CNSC Regulatory Document 2.2.2, *Personnel Training.* This regulatory document requires that SRBT utilize a systematic approach to training (SAT) program for key positions and tasks that can have an adverse effect on safety if performed in an impaired fashion.

As of the time of the application for licence renewal, Phase 1 of the program development has been nearly completed, with an analysis of the organizational training requirements having been performed, and initial program scope determined. This information has been provided to CNSC staff, and found to be acceptable [6].

CNSC staff has been kept informed of the ongoing progress in developing and implementing this program [4]. SRBT is intent on completing the design and development of the systematic approach defined in REGDOC 2.2.2 by March 2015, and implementing this program prior to the licence being renewed by the Commission. Our goal is to ensure that at the time of renewal, SRBT is compliant with the requirements of REGDOC 2.2.2.

As such, SRBT intends to submit for consideration the developed program as the 'proposed training program for workers' once it is implemented, to supplement the licence renewal application, as well as to demonstrate compliance with Nuclear Substances and Radiation Devices Regulation 3 (1) (f).

2.3 SCA – Operating Performance

As previously stated under section 2.1 of this application, the operating policies and requirements for the facility are fully described within the structure of our management system document set, including QM-005, “Quality Arrangements”.

The operating organization is defined in:

- SRBT Quality Manual {03}
  - QM-002, ‘Authorization’
  - QM-003, ‘Company Organization’
  - QM-006, ‘Management Responsibility’
- SRBT Radiation Safety Program {06}
  - Section 2.2, ‘Roles, Responsibilities and Qualifications’

Discrete authorities are further discussed below, based on the guidance provided by CNSC staff [1].

The authority to make operating decisions rests with management, as defined in QM-002, as well within unique job descriptions for each position. This includes the modification of any operating procedure that falls within their area of responsibility.

The authority to make decisions specifically regarding maintenance, including the authority of modify maintenance procedures rests with the Vice-president, with the support of the Project Engineer.

The authority to modify any safety-related system or component rests with the following members of the management team:

- President
- Vice President
- Manager of Health Physics and Regulatory Affairs
- Project Engineer
- Modifications governed by process or procedure may be performed by qualified staff, such as members of the Health Physics team.

The authority to permit staff to enter the facility, and to assign staff to facility positions, rests with the President and the Vice-president.

The authority to develop and implement policies relating to radiation safety rests with the Manager – Health Physics and Regulatory Affairs.

The authority to develop and implement policies relating to review and audit of operations rests with the Compliance Manager, supported by the Quality Manager.

The authority to develop and implement policies which relate to regulatory compliance and incident reporting in the areas of radiological and environmental protection rests with the Manager – Health Physics and Regulatory Affairs, supported by the President and Vice-president.

The authority to develop and implement policies which relate to conventional health and safety compliance and incident reporting rests with the Health and Safety Specialist.

Lines of authority are depicted graphically in the Quality Manual, under QM-003, “Company Organization”. The person with the ultimate authority for the safe operation of the facility is the President.

A listing of programs and subordinate approved procedures is included with this application {04}. This list includes procedures that describe how nuclear and hazardous substances are received, handled and stored in the facility, as well as how these substances are packaged, loaded and transported or shipped to other CNSC licensees, or other parties and customers.

SRBT tracks inventory of nuclear substances as per procedures RSO-009 “Tritium Inventory Management” and RSO-029 “Nuclear Substances Inventory Management”. These procedures are included with this renewal application {07, 08}

3.0 Functional Area: Facility and Equipment

3.1 SCA – Safety Analysis

The name, maximum quantities and forms of the nuclear substances to be encompassed by the licence are included in Part I of this application.

Description of Nuclear Facility

The nuclear facility occupies a section of a commercially zoned building. SRB Technologies (Canada) Inc. is one of three tenants occupying a “Butler Building” complex located at 320 Boundary Road in Pembroke, Ontario, Canada.

This building is owned by 898702 Ontario Inc., based in Pembroke, Ontario {01}.

The building complex is comprised of a steel frame with a metal and block exterior. The superstructure has a ceiling height of approximately 5.2 meters at the highest point. The building is divided into three parts that are separated by cinderblock walls. SRBT occupies the last unit at the north-western end of the building.

SRB Technologies (Canada) Inc. currently occupies approximately 1,186 square meters of the Butler Building complex. An addition is planned to the non-nuclear footprint of the facility, to be completed prior to licence renewal. This area will be used to store parts relating to manufacturing, and will add approximately 180 square meters to the Zone 1 footprint of the facility.

The facility is described in much greater detail in sections 1, 2 and 4 of the SRB Technologies (Canada) Inc. Safety Analysis Report {05}.

There are no ‘exclusion zones’ established as part of the site of licensed activity; however, the northwest section of the site where bulk nitrogen storage, air handling units and stacks are located is surrounded by an access-control fence.

Plans of the site, the facility itself, and the locations of the nearest residences and communities, roads and transportation corridors are included in the Safety Analysis Report {05}. The report also includes a description of the use of the land near the site, and of the activities that take place near to the facility.

For the purposes of the requirement stated under Class I Nuclear Facilities Regulations, section 6 (c) and (h), the final safety analysis report demonstrating the adequacy of the design of the nuclear facility, and detailing the effects on the environment and the health and safety of persons that may result from the operation of the nuclear facility, is the referenced SAR discussed above. Calculated public radiation doses are described in the latest approved version of the Derived Release Limit document {15}.

The SAR includes a description of the measures that are or would be taken to prevent and / or mitigate any effects of our operation. Additional description of the measures to be taken are included as part of the set of safety programs depicted in QM-005 of the Quality Manual {03}, including but not limited to the Radiation Safety Program {06}, the Environmental Management System {26} and Environmental Monitoring Program {29}, the Fire Protection Program {17}, the Facility Security Program, and the Emergency Plan {18}.

Operation of the facility is expected to continue for some time; formal decommissioning activities are not planned nor expected to be undertaken in the next two decades or more. Nevertheless, SRBT has recently performed a comprehensive update of the Preliminary Decommissioning Plan (PDP). This plan discusses the anticipated effects on the environment and the health and safety of

persons that may result from the decommissioning of the nuclear facility, as well as the measures that will be taken to prevent or mitigate those effects. This plan is included with this application {09}. As of January 6, 2014, a total of $550,486 was held in escrow for the purposes of decommissioning of the facility.

Description of Prescribed Equipment or Information

SRBT does not require the renewed licence to specifically encompass any activities relating to prescribed equipment or information, as defined by section 20 of the General Nuclear Safety and Control Regulations.

SRBT manufactures and distributes several CNSC-certified devices; these certificates are included as part of the application {10}.

Description and Results of Tests, Analysis or Calculations Performed

The information included in this application is substantiated by the following documented tests, analyses and calculations:

- SRB Technologies (Canada) Inc. Safety Analysis Report {05},
- Systematic and Quantitative Analysis of Tritium Sources and Their Potential Contribution to Groundwater Contamination, dated March 29, 2007 {11},
- Release Limit Rationale, dated December 12, 2007 {12},
- Comprehensive Report – Groundwater Studies at the SRB Technologies Facility, dated January 2008 {13},
- Release Limit Rationale In Support of Licence Renewal Application, dated October 28, 2009 {14},
- Derived Release Limits (DRLs) for the SRB Pembroke Facility – 2006, dated September 2006 {15},
- Review of Hypothetical Incident Scenarios, dated February 22, 2008 {16},
- Preliminary Decommissioning Plan 2014 {09}

All of the above referenced documentation has been provided previously to CNSC staff; however, it is included as part of the appendices to this application.

In addition, the following set of programmatically required tests, analyses and calculations continue to be conducted on a routine basis, and also help to substantiate several aspects of this application:

- Environmental monitoring sampling and results – concentration of tritium in air, groundwater, precipitation, surface waters, locally grown produce, locally produced milk and spirits, etc.
- Gaseous effluent monitoring – tritium concentration in gaseous effluent. Oxide and elemental tritium via cumulative collection and sampling processes, as well as real time monitoring of total tritium in gaseous effluent.
- Liquid effluent monitoring – concentration of soluble tritium in sanitary drain-dischargeable water, using collection, temporary storage, measurement and controlled release strategies.
- Contamination monitoring – continuous and routine assessment of removable tritium contamination on surfaces throughout the facility, and on items to transition from active radiological zones into non-active zones.
- Worker dose monitoring – dose assessment of SRBT employees via bioassay tests.
- Facility Fire Inspection and Maintenance activities.

Results from each of these routine are summarized in periodic reports to CNSC staff, such as our Annual Compliance Reports or the Quarterly Environmental Monitoring reports.

In each case, results consistently indicate that the facility has continued to comply with the requirements of the licence, the ALARA principle, and operates within the licensing basis.

3.2 SCA – Physical Design

The information provided under 3.1 “SCA – Safety Analysis” provides a description of the site of the activity to be licensed, including the location of any exclusion zone and any structures within that zone, and also includes plans required pursuant to section 3 (b) of the Class I Nuclear Facilities Regulations.

The building is comprised of a steel frame with a metal and block exterior. The superstructure has a ceiling height of approximately 5.2 meters at the highest point. The building is divided into three parts that are separated by cinderblock walls. SRBT occupies the last unit at the north-western end of the building, with the facility having one main floor, as well as a smaller second level dedicated to storage of materials and safety device components for manufacturing.

The building houses two other businesses (Linde Industrial Gases and Med-Eng); the principal use of the building is to house businesses and manufacturing concerns.

All boundaries, fire protection features, systems and equipment, circuits, emergency lighting and emergency exits, laboratory and building hazards, compressed gas storage, natural gas pipes, significant combustible inventories and water mains are described in the following documents:

- Safety Analysis Report {05}
- Fire Protection Program {17}
- Emergency Plan {18}

With respect to the SCA of Physical Design, section 6 of the Class I Nuclear Facility Regulations requires any application for a licence to operate a Class I nuclear facility to contain:

- a description of the structures at the nuclear facility, including their design and their operating conditions
    - Included in SRB Technologies (Canada) Inc. Safety Analysis Report {05}.
- a description of the systems and equipment at the nuclear facility, including their design and operating conditions
    - Included in SRB Technologies (Canada) Inc. Safety Analysis Report {05},
    - Also included in section 3 ‘Facilities and Equipment’ of the Radiation Safety Program {06}.
- the proposed commissioning program for the systems and equipment that will be used at the nuclear facility
    - Commissioning of new equipment, processes or activities is governed by QM-014, Process Control, as well as QAS-013, Process Control. The commissioning process is planned to be revised in alignment with the requirements of CSA N286-12, as part of our implementation plan in this regard.

Section 3 (1) of the NSRDR requires that if a licence application is in respect of a nuclear substance that is an unsealed source and that is to be used in a room, the proposed design of the room be included as part of the application.

Tritium in gaseous form is processed in the ‘Rig Room’. Processing, as well as the design of the Rig Room, is described in the Safety Analysis Report {05}. The design description includes the design of the main safety system for the facility, namely, the active ventilation systems, as well as other key components and systems used to process gaseous elemental tritium.

3.3 SCA – Fitness for Service

SRBT continues to maintain critical equipment 'fit for service', through established maintenance processes and routine schedules.

There have been no incidences where there had been a significant safety concern or risk due to equipment being unfit for service over the last licence term. Effective stack heights have been maintained in compliance with licence requirements during all periods of tritium processing operations, as per ENG-014, Effective Stack Height.

Maintenance of all safety systems and safety-related components is governed by the SRBT 'Maintenance Program' {19} which has undergone a formal revision process in 2013/14.

The new revision of the program was submitted to CNSC staff [7]. A target date has been set for December 31, 2014 for complete transition of maintenance procedures from the Revision 4 program document into a stand-alone set of procedures.

The Maintenance Program has been improved to align with applicable regulatory guidance respecting maintenance practices and principles used in the nuclear power industry. Although SRBT does not house a nuclear reactor, several of the concepts described in RD/GD-210, *Maintenance Programs for Nuclear Power Plants* were viewed as potentially beneficial if applied at SRBT. This includes such concepts as critical spare parts, as well as a master equipment list where maintenance strategies are based on the importance of the structure, system or component to the safe operation of the facility.

Further description of maintenance and inspection activities can be found in ENG-005, "Plant Maintenance".

Maintenance of the active ventilation systems is currently conducted on a quarterly basis. This includes a comprehensive inspection of key components of the system, including fans, belts, motors and differential pressure measurement devices used to calculate effective stack height.

Other safety equipment, including equipment relating to environmental and radiation protection, is inspected at least daily by staff in the area, or prior to use (for portable protection equipment).

The equipment used to detect tritium in the working environment does not include radiation survey meters in the conventional sense (i.e. gamma- or beta-detecting instruments); however, detection of tritium involves the use of Tritium-In-Air monitors, both stationary units and hand-held portable units.

This equipment is calibrated as defined in:

- Section "3.5.2. Working Environment Monitoring" of the Radiation Safety Program {06},
- Second tier Radiation Safety Procedure "RSO-011 Instrument Calibration",
- Second tier Quality Assurance Procedure "QAS-010 Calibration of measuring / test equipment",
- Second tier engineering procedure "ENG-015 Chart Recorder".

Operations at SRBT do not pose an external radiation hazard to workers. As such, the use of dosimeters referred to in the NSRDR is not applicable, and therefore no methods, procedures or equipment are used to calibrate, or verify calibrated, these devices.

SRBT does not use any registered sealed sources that require leak testing pursuant to the regulations; tritium light sources that are manufactured as part of the licensed activity are subjected

to a process of leakage detection as part of our quality assurance process, as per the requirements of RSO-020, Betalight Leak Testing.

Any methods, procedures and equipment that are used to conduct leak tests and surveys are described in the Radiation Safety Program {06} and second tier radiation safety procedures {04}

Surface contamination assessments involve indirect assessments of surfaces using swipe samples, which are assayed using liquid scintillation counting methods. These activities are defined in RSO-001, Daily Facility Contamination Monitoring.

Calibration of Health Physics related equipment is currently performed in accordance with the fourth revision of the Maintenance Program {20}, as well as RSO-011, Instrument Calibration, and ENG-015, Chart Recorder. A procedure subordinate to the latest revision of the Maintenance Program {19} is to be in place by the end of 2014.

4.0 Functional Area: Core Controls and Processes

4.1 SCA – Radiation Protection

The measures proposed to ensure compliance with the Radiation Protection Regulations are contained within the SRB Technologies (Canada) Inc. document entitled Radiation Safety Program {06} and the second tier RSO-series procedures {04} which provide instruction for health physics related activities, and compliance with regulatory compliance requirements relating to radiation protection.

This program and subordinate procedure set, coupled with the Emergency Plan {18} constitute the set of methods, procedures and equipment that will be used while carrying on the activity to be licensed, or during and following an accident, including:

- how SRBT will detect the presence, and record the quantity of tritium at the site of activity to be licensed,
- how any person, site or equipment would be decontaminated as a result of the activity to be licensed, and
- a description of the circumstances where the above-mentioned decontamination would be carried out.

Action levels to be applied to facility operations have been documented in the SRBT management system document titled “Licence Limits, Action Levels and Administrative Limits” {21}. These criteria are listed here:

Table 4-1: Action Levels

Criteria	Action Level
Effective Dose to Worker	1.0 mSv / quarter
	3.0 mSv / year
	15 mSv / 5 year period
Effective Dose to Pregnant Worker	2.0 mSv for balance of pregnancy
Bioassay Result	1,000 Bq / ml for any period
Stack Emissions – Tritium Oxide	840 GBq / week
Stack Emissions – Tritium Oxide + Gas	7,753 GBq / week
Real-time Concentration of Tritium in Gaseous Effluent (on chart recorder)	≥ 0.37 GBq/m^3 for a duration of one hour
Liquid Effluent – Tritium, water soluble	0.15 GBq / day

For completeness, the administrative limits set in support of maintaining radiation doses and environmental releases as low as reasonably achievable (ALARA) are listed here. They provide an 'early warning' signal that programmatic controls may be suboptimal, and potentially require augmented oversight and improvement.

Table 4-2: Administrative Limits

Criteria	Action Level
Effective Dose to Worker	0.75 mSv / quarter
	2.25 mSv / year
Bioassay Result	500 Bq / ml for any period in Zone 3 100 Bq / ml for any period in Zone 1 or 2
Removable Surface Contamination	4.0 Bq/cm^2 for Zone 1 and 2 40.0 Bq/cm^2 for Zone 3
Tritium-in-air Monitor Alarm Threshold Levels	5 μCi/m^3 for Zone 1 and 2 10 μCi/m^3 for Zone 3

SRBT's Radiation Safety Program ensures that:

- contamination and radiation doses received by employees and contract staff are monitored and controlled,
- the ALARA principle is rigorously followed and applied in all phases of our operations,
- program performance is continuously assessed, and improvements sought out,
- the radiological hazards are controlled and monitored, and
- the dose to the public is estimated.

The program and subordinate procedures define the methods used to detect the presence of, and record the radiation dose rate and quantity in Bq of nuclear substances; to limit the spread of radioactive contamination within the facility; and when and how decontamination is to occur, as per the NSRDR. For emergency procedures relating to these objectives, the Emergency Plan {18} supports this information pertaining to the required methods and procedures.

4.2 SCA – Conventional Health and Safety

SRBT is a federally-regulated entity, and is thus subject to the provisions of the Canada Labour Code (CLC), the Occupational Health and Safety Regulations, and associated regulations.

The worker health and safety policies and procedures in place at SRBT include:

- Section 3.2 “Health and Safety” of the Radiation Safety Program {06}
- Health and Safety Policies and Procedures {22}
- Hazard Prevention Program, Rev. C {23}
- Instructions in Workplace Health and Safety Training sheets {24}
- Facility Hazard Identification Training sheets {24}

In accordance with Section 135(1) of the CLC Part II, SRBT maintains an Occupational Health and Safety Committee.

The committee is comprised of no less than three members (currently five members), and are required to meet no less than nine times per year as per the CLC Part II.

Yearly reports are made to Human Resources and Skills Development Canada as part of obligations pursuant to the Occupational Health and Safety Regulations. These reports include the Employer’s Annual Hazardous Occurrence Report, as well as the Work Place Committee Report.

On May 1, 2013 a new position of Health and Safety Specialist was added to the organization in order to provide more focus and emphasis on occupational Health and Safety. The individual in this position has received external training in various aspects of Health and Safety and has over six years of work experience in different positions at SRBT.

This individual fills the lead role in the Committee, and is responsible, with the support of the Committee, for developing and implementing policies relating to Conventional Health and Safety in the facility.

As an improvement initiative, in August 2014 all supervisory staff received training and certification in emergency first aid, cardiopulmonary resuscitation (CPR), and automatic external defibrillation (AED). A full day of training, including practical exercises and testing, was provided by the Ottawa Paramedic Service. As of August 20, 2014, no less than 13 staff members are certified in first aid, CPR and AED, representing approximately 25% of our workforce.

Additional procedures that relate to health and safety can be found in the Radiation Safety Program {06} and procedure set {04}, the Fire Protection program {17}, the Contractor Management Program {25}, the Facility Security Program, and the Emergency Plan {18}.

4.3 SCA – Environmental Protection

Environmental protection policies are defined in the set of documents that constitute the Environmental Management System (EMS). These include:

- "Environmental Management System" {26},
- "Environmental Objectives and Targets" {27},
- "EMS Significant Environmental Aspects" {28},
- "Licence Limits, Action Levels and Administrative Limits" {21}
- QM-001 "Quality Policy" {03}

Overall responsibility for policy development and implementation rests with the President, supported by the Manager – Health Physics and Regulatory Affairs.

The SRBT Environmental Monitoring Program is described in Environmental Health and Safety Manual "Environment Monitoring Program Document" {29}. This document establishes the baseline monitoring program used.

CNSC staff continually receives reports on all of our environmental monitoring activities and initiatives. This includes groundwater monitoring results each month, as well as a quarterly summary of all environmental monitoring activities and results.

For completeness, a listing of the environmental monitoring activities currently performed by SRBT is included here. Descriptions of exact locations of sampling points are available in our Annual Compliance Reports, Quarterly Environmental Monitoring Reports, and Monthly Groundwater Monitoring Results submitted to CNSC staff.

Table 4-2: Environmental Monitoring Sample Frequency

Frequency	Description of Sampling (number of samples)
Monthly	Passive Air Samplers (40 + duplicates)
	Facility Passive Air Samplers (3)
	Groundwater Monitoring (36 wells for concentration and water level)
	Precipitation (8)
Every Four Months	Residential and Business Wells (12)
	Locally Produced Milk (2)
Annually	Resident-Grown Produce (varies)
	Commercially-Grown Local Produce (varies)
	Commercially Produced Spirits (1)
No Specified Frequency	Downspout monitoring (6)
	Pooled surface precipitation / snow / snow melt
	Surface Waters (nearby river sampled unless frozen)

Periodic sample collection and analysis is contracted to a commercial provider of this service; the contract stipulates that the services shall be performed in accordance with a Quality Assurance program that complies with CSA Standard N286, ISO 9001, and in accordance with the QA protocols and procedures of the monitoring program in place as part of their own CNSC-issued licence. Quality verification data is included with each report for assessment by SRBT, and the contractor has been formally approved via the Contractor Management process {25} as being fully qualified and capable of conducting this activity on our behalf.

As stated under SCA 'Management System', SRBT plans on having the Environmental Monitoring Program (EMP) document revised and submitted to CNSC staff by the end of the first quarter of 2015, in order to ensure that all current environmental monitoring activities are fully described and documented. The program, policies and procedure set will be reviewed against the guidance

contained within the N288-series of CSA Standards, and REGDOC 2.9.1, *Environmental Protection: Policies, Programs and Procedures",* with an intent towards following the provisions of these documents in an appropriately graded fashion.

Airborne effluent

The gaseous effluent monitoring program is described in section 3.5 "Emissions Monitoring" of the Radiation Safety Program {06}, and the program is executed as described in RSO-006, "Weekly Stack Monitoring" {30}.

The release point locations and typical characteristics of the radiological airborne effluent are described in section 4 of the SRB Technologies (Canada) Inc. Safety Analysis Report {05}, and in section 3.5 'Emissions Monitoring' of the Radiation Safety Program {06}.

The maximum quantities, differentiated by physical, chemical and radiological characteristics released to the atmosphere are currently governed by our operating licence; however, SRBT makes every effort to ensure that at all times, our emissions to the atmosphere fall well below the action levels described in our operating licence, as well as the document titled Licence Limits, Action Levels And Administrative Limits {21}.

During normal and routine operations, the concentration of tritium in the airborne effluent very rarely exceeds 0.37 GBq/m^3, and even then for only a very limited period of time. Total tritium released to the environment has not exceeded a weekly action level throughout the current licence period (i.e. less than 840 GBq of HTO, less than 7,753 GBq HTO+HT). During any given week, the typical volume of flow through the two active ventilation systems will reach between 2,700,000 – 3,000,000 cubic meters of air.

Control of airborne radioactive releases to the environment is provided through well-established and documented work practices when processing tritium. In addition, stack releases are monitored frequently during processing by operations staff, in order to determine at an early stage if there are problems with processing that are leading to increased tritium releases. Processing operations are managed in order to ensure tritium emissions remain below established limits and action levels, and that optimum conditions are present when processing is occurring (i.e. no processing while precipitation is occurring).

The location of points of release, the proposed maximum quantities and concentrations, and the anticipated volume and flow rate of releases of hazardous substances into the environment, including their physical, chemical and radiological characteristics are in accordance with Certificate of Approval Air Number 5310-4NJQE2 issued by the Ontario Ministry of the Environment. This certificate is included along with a table summarizing emissions of gaseous or volatile hazardous substances {31}.

Liquid Effluent

The liquid effluent monitoring program is described in section 4.10 "Radioactive Waste Handling and Disposal" of the Radiation Safety Program {06}, section 10.1 "Tritium in Liquid Form" of the SRBT Waste Management Program {32}, and RSO-013, "Liquid Effluent Assessment", Rev. E {33}.

These documents describe the processes for measuring, controlling and managing radioactive releases in liquid form.

Water may become contaminated with tritium through several processes within the facility, including:

- Betalight leak testing
- Decontamination of items and surfaces
- Groundwater well purging activities
- Dehumidification and air conditioning in active areas

Tritium bearing liquids are released from drains within the facility, with the vast majority of tritium being released from the Rig Room. The maximum quantities of water-soluble tritium released to the sewer are limited to 200 GBq per year by licence condition; however, SRBT controls liquid effluent using a process that ensures no more than 0.15 GBq is released per day (less than an action level). Concentrations of tritium in liquid effluent leaving the SRBT facility are further managed in order to meet an internal administrative target of no more than 0.07 GBq released per day.

Potential effects on the environment that may result from the operation and decommissioning of the facility, as well as the measures that are taken (or will be taken during decommissioning) to mitigate those effects have been fully described in the Safety Analysis Report {05} and the Preliminary Decommissioning Plan {09}.

Hazardous materials are not released from the SRBT facility via liquid effluent pathways.

Derived Release Limits for SRBT

The derived release limits for SRBT have been subject to several instances of review and revision over the operating history of the facility.

The latest approved version of the DRL document is included with this application {15}. A DRL document has been developed in line with the guidance and requirements of N288.1-08, and is currently in the process of review and comment by senior management.

4.4 SCA – Emergency Management and Fire Protection

Emergency Management

In order to prevent or mitigate the effects of any accidental releases of nuclear substances into the environment, and to ensure the maintenance of the health and safety of persons, and of national security, SRBT has in place a comprehensive Emergency Plan {18}.

This plan includes a description of the response measures to be implemented in case of emergency, including fires and spills in which nuclear substances may be involved, as well as other accidents of either an internal or external nature. The plan establishes the methods, procedures and equipment that will be used during or following an accident, thus meeting the licence application requirements of the NSRDR.

The plan documents the following:

- the assistance required to be provided to off-site authorities;
- the notification processes to alert off-site authorities, including the CNSC, of an accidental or imminent accidental release of radioactive materials;
- the provision of information to off-site authorities during or after an accidental release;
- the assistance provided to off-site authorities in dealing with the effects of an accidental release; and
- the testing of the implementation of these measures.

Additional response measures for dealing with accidents and spills in which nuclear substances may be involved are described in section “4.13 Audible Alarm Procedure” of the Radiation Safety Program {06}.

In the fourth quarter of 2014, prior to licence renewal, SRBT plans to conduct an emergency exercise to test the planned measures to be initiated during an emergency. CNSC staff will be engaged in the planning of this activity, have provided guidance and a draft regulatory document [8], and have indicated that they plan on being on-site during the exercise as an observer.

Fire Protection

SRBT has a comprehensive Fire Protection program {17}, which includes provisions for:

- the establishment of a Fire Protection committee,
- inspections of the facility and fire protection equipment,
- training of staff in fire protection,
- control of flammable materials, including liquids and gases,
- facility design requirements,
- maintenance of equipment relating to fire protection,
- managing impairments to protection systems, and
- emergency planning and response.

This program has been prepared to fully demonstrate how the requirements of NFPA 801, *Standard for Fire Protection for Facilities Handling Radioactive Materials,* 2008 are implemented and integrated into facility operation in a controlled and coordinated manner, in order to ensure adequate protection against fires.

Recently, a gap analysis has been initiated to establish compliance with CSA Standard N393-13, *Fire Protection for Facilities that Process, Handle, or Store Nuclear Substances.* This gap analysis is ongoing at the time of submission the renewal application, and is due to be submitted to CNSC staff in October 2014, prior to renewal of the operating licence [3].

4.5 SCA – Waste Management

For the past licence period, SRBT has closely monitored and managed all forms of radioactive and hazardous wastes. The processes used to store, manage, process and dispose of radioactive waste is documented within SRBT's Waste Management Program {32} and in section 4.10, 'Radioactive Waste Handling and Disposal' of the Radiation Safety Program {06}.

For the purposes of renewal of the licence, the types of tritium-bearing solid wastes expected to be generated and managed are likely to remain consistent with the past two years of operation of the facility, depending somewhat on production rates. To illustrate expected amounts, the solid radioactive wastes generated by the facility over the past twenty months (Jan 2013 – Aug 2014) are as follows:

- Very-low level waste (VLLW), or Clearance-level waste, including minimally contaminated paper towel, gloves, lab coats, shoe covers etc. = approximately 1,500 kg, or 75 kg per month on average.
- Low-level waste (LLW), including crushed glass stubs, filters, expired tritium light sources, broken tritium light sources, and clean up materials = approximately 5,000 kg, or 250 kg per month on average.

All waste is packaged in approved containers, and stored pending approval for shipment or disposal. These materials are handled in accordance with the NSRDR and other regulatory requirements, and are handled, stored, packaged and transferred to licensed waste handling facilities as required, in line with RSO-005, 'Radioactive Waste Consignment {34}, RSO-023, 'Waste Handling {35}, RSO-025, 'Interim Preparation and Storage of Waste' {36}, the Waste Management Program document {32}, and the SHP- procedure set {37} which governs all packaging and shipping processes for radioactive materials at SRBT, including waste.

The Waste Management program is currently undergoing revision, and is expected to be approved for use before the end of 2014. CNSC staff will be engaged in this process to ensure that the new program information is incorporated as part of our application for licence renewal.

Solid hazardous wastes consist of industrial items such as batteries, fluorescent light tubes, aerosol cans and the like. These are generated routinely in small quantities, as would be expected for an industrial facility, and are disposed of in accordance with municipal requirements.

Historically, the only liquid hazardous waste generated at the facility originated from the silk screening process, at a maximum rate of approximately 20 liters per year. These wastes have not been generated at SRBT since 2009, as the process for silk screening was modified resulting in the elimination of this routinely generated waste stream. As a result, SRBT no longer generates any liquid hazardous waste materials on a routine basis.

A listing of hazardous substances that may be in the facility inventory is included with this application {38}.

Disposal or Return to Manufacturer – Radiation Devices

SRBT signs are clearly identified with our company's contact information, and presently our procedure for the disposal of each self-luminous tritium-powered sign is initiated by the end users.

Should an end user of any self-luminous tritium-powered sign contact SRBT for disposal or guidance, SRBT informs the end user of the applicable regulations and offers a disposal route for the signs.

This is verbally discussed with any customer at time of purchase and also provided in writing with every sign supplied by SRBT. In 2013, a total of 28,685 expired or otherwise unneeded self-luminous signs were returned to the facility.

Decommissioning Plan

SRBT has recently performed a major revision of our Preliminary Decommissioning Plan, supported by specialists and third party contracted staff. This plan {09} is included with the application for renewal, in accordance with the Class I Nuclear Facilities Regulations, section 3 (k).

4.6 SCA – Security

In order to ensure compliance with section 42 through 48 of the Nuclear Security Regulations, SRBT implements and maintains a Facility Security Program.

This program document has not been included as part of this licence application, as it contains sensitive information. CNSC staff has received, reviewed and accepted the latest revision of this program.

Some of the proposed measures to control access to the site of the activity to be licensed are outlined in the Facility Security Program, dated February 15, 2012. This program provides a description of the security system in place at the facility and describes the processes and requirements relating to facility access, facility access security clearance. Section 1.14 of this program describes the Supervisory Awareness Program.

Measures to prevent sabotage, loss, illegal use, possession or removal of nuclear substances from the facility are listed in section “4.5 Security of Radioisotopes” the Radiation Safety Program {06}.

4.7 SCA – Safeguards and Non-Proliferation

SRBT possesses a very limited quantity of depleted uranium, currently amounting to 7.27 kg. This material is used in our tritium processing operations as adsorbent trapping material for gaseous elemental tritium.

If and when required, SRBT shall take all necessary measures to facilitate Canada's compliance with applicable international nuclear safeguards agreements. Any IAEA inspector or person acting on behalf of the IAEA shall be provided with such reasonable services and assistance as are required to enable the IAEA to carry out its duties and functions pursuant to a safeguards agreement.

For all incoming or international shipments of products containing tritium gas, SRBT obtains the required import or export licenses, as per the Nuclear Non-proliferation Import and Export Regulations.

Prior and post-notifications are made as required to the CNSC, as well as annual reports for each licence issued to SRBT. The process for managing export licenses, as part of our measures for compliance with the requirements relating to non-proliferation, is described in SHP-011, 'Document – Export Licences', which is included in the application {37}.

4.8 SCA – Packaging and Transport

SRBT maintains a procedure set dedicated solely for establishing how nuclear substances, and in particular tritium, are packaged, transported, packaged, shipped, and received. These procedures are coded SHP-001 to -012, and are managed as a subcomponent of the Radiation Safety program. These procedures are included with this application {37}.

SRBT does not itself engage in the transport nuclear substances; however, several companies are used to provide shipping services for incoming and outgoing products containing tritium. At all times, the requirements of the SHP-series procedure set, IAEA Safety Standard TS-R-1, the CNSC Packaging and Transport of Nuclear Substances Regulations, the Transportation of Dangerous Goods Act, and the NSCA are followed.

Instructions to third party shipping concerns are provided at the time of shipment, depending on the nature and classification of the shipment and the goods.

In 2013, SRBT packaged and offered for transport 744 consignments of self-luminous products. These shipments were delivered without incident to 13 different countries, with more than 90% of these shipments being made to North America and Great Britain.

As a gaseous substance, tritium is not ‘handled’ in the conventional sense as one would manipulate solid or liquid nuclear substances. Handling tritium in the facility is governed by operating procedures in Zone 2 and 3 areas, and in the shipping area. These procedures include such practices as the loading of tritium traps, rig filling operations, the testing of light sources, painting of lights, the assembly of lights into devices, quality assessment of lights, and packing and shipping practices.

SRBT does not routinely use nor possess ‘sealed sources’ of any category, as defined in CNSC REGDOC 2.12.3, *Security of Nuclear Substance: Sealed Sources* and IAEA Safety Guide RS-G-1.9, *Categorization of Radioactive Sources.*

5.0 Other Matters of Regulatory Interest

5.1 Financial Guarantee

A Financial Guarantee for the operations was approved by the Canadian Nuclear Safety Commission in October 2007. As per condition 16.2 of Licence NSPFOL-13.00/2015, SRBT has continued to make the payments to the decommissioning escrow account or “Decommissioning Escrow Account Deposits” as found in section 3.16 of the Licence Condition Handbook LCH-SRBT-R000.

The last payment to complete the funding the Financial Guarantee was made nearly 3 months ahead of schedule, on January 6, 2014. The value in escrow on January 6, 2014 was $550,486 and continues to build interest which remains in the account.

On June 23, 2013, SRBT provided CNSC staff a revised Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee; the revised Cost Estimate reflected inflationary increases since the plan was approved by the Commission in 2007. These documents were also revised using guidelines found in G-219 - *Decommissioning Planning for Licensed Activities*, G-206 - *Financial Guarantees for the Decommissioning of Licensed Activities* and CSA Standard N294-09, *Decommissioning of facilities containing nuclear substances*.

Based on CNSC staff comments SRBT provided CNSC staff another revision of the Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee on June 20, 2014. As requested by CNSC staff this latest cost estimate for decommissioning the facility is based on “a walk away approach” where all work is completed by a third party with CNSC oversight. The value of the cost estimate has been revised to $601,211.95 which includes a 15% contingency factor.

In a letter dated August 22, 2014 CNSC staff provided SRBT comments on the revised Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee. SRBT expects to address these latest comments before September 22, 2014 and shortly after anticipate CNSC's response that all comments were addressed satisfactorily. SRBT then expects to issue the final revision of the Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee.

SRBT proposes to fund the increase in the cost estimate by making six equal payments, as per previous schedule in October and April of each year, over a three year period beginning in October 2014.

5.2 Public Information Program

SRBT maintains a Public Information Program (PIP) {39} which has recently undergone a process of internal review and revision, with subsequent comment by CNSC staff, resulting in additional revision activities that are expected to meet CNSC staff expectations [9].

In this program, processes are described which are designed to inform persons living in the vicinity of the site of the general nature and characteristics of our facility and the operations undertaken.

In addition, information is provided in order to illustrate the anticipated effects on the environment and the health and safety of persons that may arise from licensed activities.

SRBT uses several strategies to communicate with the public and interested stakeholders, including surveys, pamphlet distribution, and a specific section of our corporate website. All public information and media is periodically updated and refreshed, and CNSC staff has been kept apprised of the progress in this area.

SRB's Public Disclosure Protocol outlines that one of SRB Technologies (Canada) Inc.'s goals is be transparent, visible and open with our community, our regulators, and our staff. SRB Technologies (Canada) Inc.'s Staff led by Senior Management are committed to achieving this goal by having suitable mechanisms in place to provide in a timely manner specific information in a clear and concise manner about the operations to the target audience.

SRB Technologies (Canada) Inc. is also committed to the continuous review of the effectiveness of these mechanisms and to make modifications to adapt to perceived changes in public perception. Our Public Information Program outlines the mechanisms used to achieve these goals.

SRB Technologies (Canada) Inc. operates within the City of Pembroke. The effects of the operations, although minimal, are by far the greatest on Pembroke and its residents. For these reasons the Public Information Program has been developed to reach the population of Pembroke, specifically including:

- The critical group defined as individuals living within 500 meters of the facility;
- Residents with wells or gardens that are being monitored by SRBT;
- Local and adjacent businesses;
- Local media, television, print and radio;
- Local special interest groups;
- Local Aboriginal groups;
- Local elected officials at the Municipal, Provincial and Federal level

The activities outlined in the Public Information Program demonstrate that SRB Technologies (Canada) Inc. is committed to:

- Maintaining two-way communication channels to address the questions and concerns of people within our target audience in a timely and clear manner;
- Sending a press release to the Local Media, CNSC Staff and Local Elected Officials within one business day after becoming aware of any Regulatory limit or licence limit exceedance;
- Posting on our website within five business days after notifying the CNSC of any Regulatory limit or licence limit exceedance, action level exceedance, major events, incidents or issues with the operations;
- Posting on our website within five business days after making any licence renewal or amendment application to the CNSC;
- Posting on our website results of our Environmental Monitoring Quarterly Report within five business days after issuance to CNSC Staff;

- Posting on our website all Annual Compliance Report and associated amendments and/or addendums within five business days after issuance to CNSC Staff;
- Posting on our website before March 31st a yearly update of our pamphlet which is a two page document which introduces the company to members of the public and provides some information on risks associated with emissions of the facility as well as providing clear contact information for an interested reader to acquire more detailed information;
- Posting on our website before March 31st a yearly update of our brochure which is an eight page document that provides more detailed information than our pamphlet regarding the company and regarding the risks associated with emissions of the facility as well as providing clear contact information for an interested reader to acquire more detailed information;
- Formally meeting with representatives of local interest groups to discuss licence renewals or amendments;
- Conducting regular tours of our operations for members of the community to increase public knowledge and understanding of our operations;
- Performing presentations pertaining to our operations for members of the community to increase public knowledge and understanding of our operations;
- Reviewing at least on a quarterly basis what is believed the public perception is regarding the operations and make modifications to Public Information Program as deemed necessary, and;
- Continuing to collaborate with other members of the nuclear industry.

5.3 Information on Performance

SRBT has operated the facility safely and compliantly throughout the current licence period. As of September 8, 2014, no action level exceedances or reportable events have occurred in this time frame.

The following table compiles several critical metrics for the first four years of the current licence term, which demonstrate a high level of performance in the areas of protection of workers, the public and the environment:

Table 5-1: Critical Performance Metrics (2010 – 2013)

Metric	**2010**	**2011**	**2012**	**2013**
Ratio of Tritium Released vs. Processed (%)	0.55	0.76	0.29	0.26
Release as Liquid Effluent (% of Licence Limit)	3.31	3.90	5.99	4.55
Releases to Atmosphere – Tritium Oxide (% of Licence Limit)	13.65	18.61	12.43	26.52
Releases to Atmosphere – Total Tritium (% of Licence Limit)	8.13	12.43	6.68	17.61
Worker Average Dose (mSv)	0.11	0.25	0.11	0.21
Worker Maximum Dose (mSv, [% of Regulatory Limit of 50 mSv])	0.88 [1.76]	1.15 [2.30]	0.80 [1.60]	1.93 [3.86]
Collective Dose, All Workers (person-mSv)	1.82	4.47	2.75	7.94
Calculated Dose to Maximally Exposed Member of the Public (mSv, [% of Regulatory Limit of 1 mSv])	0.005015 [0.50]	0.005031 [0.50]	0.004346 [0.43]	0.006795 [0.68]

Facility performance has been consistently rated as ‘Satisfactory’ or higher in all SCAs by CNSC staff during periodic performance reports to the Canadian Nuclear Safety Commission.

Only a single lost time injury has occurred during the current licensing term. In 2011, there was one minor incident where an employee needed medical care at the outpatient department at the local hospital as a result of an injury that occurred during the machining process in Zone 1, where no tritium is handled or processed. All required documents were sent to the Workplace Safety and Insurance Board, and an investigation report is kept on file. The incident resulted in five days of lost time.

As of September 8, 2014, only one CNSC-issued inspection action remains open (SRB-2014-04-10-A1), and a response anticipated to justify closure of this action is due to be submitted by October 31, 2014. This action has been evaluated by CNSC staff as not posing an unreasonable risk to the environment or the health and safety of persons.

Overall, SRBT stands behind the operating performance of the facility as having met or exceeded requirements and expectations of the CNSC staff, and of facility management. Despite this success, we are never satisfied, and a focused effort continues to be made every day to increase our performance in all areas relating to the safe operation of the facility.

5.4 Assessment of Existing Safety Challenges

SRBT continues to operate the facility in a continuously safe and compliant fashion. During the licensing period, there were no action level exceedances or significant safety-related events.

Our business has continued to grow in a controlled and sustainable fashion, and continuous improvement is one of the key principles that guide our activities. Continuing to grow the business sustainably will require ceaseless dedication and focus. Our staff and management are committed to this.

Technological advancements will be researched to further reduce the ratio of tritium that is released to the environment during routine processing. The availability of this technology may present a challenge; however, advances continue to be made by industry, and these will be monitored internally for opportunities for testing and application, in line with the concept of ALARA.

Although we will continue to work towards emission reduction at all times, maintaining an annual downward trend will present a challenge due to the success of the business. Management is keenly aware of this, and commits to ensuring that every effort is made to maintaining a decreasing trend in emissions, both total and with respect to ratio versus processed tritium.

The company has expanded over the second half of the current licence term, with the ratio of long-term experienced staff versus less experienced staff shifting in turn. Management of this change will require a focus on mentorship, training and integration of newer staff members on a continuing basis. The pool of available qualified staff to our facility could present a challenge due to industry and demographical shifts in the area.

Although these items are discussed here as ‘challenges’, we are fully committed to ensuring the protection of workers, the public and the environment during all aspects of our operations. Safety is the primary concern during all licensed activities, and none of these challenges are viewed as insurmountable, and SRBT expects to successfully navigate each and every challenge to nuclear safety.

5.5 Safety Improvement Plans During the Next Licence Period

One of the key improvement plans to be completed during the next licence period will be the Implementation Plan for addressing management system gaps with CSA Standard N286-12. This plan has been included with this licence application.

The implementation of a new SAT program will begin its first full cycle during the early part of the next licence period. Continued renewal of this cycle as required by REGDOC-2.2.2 will add to the level of safety of our workers and operations.

In addition, training opportunities are being sought externally which will contribute to safety. Management and workers will participate in external training courses, conferences and conventions where a safety benefit can be realized. The focus on this aspect of our training program will be magnified to ensure this improvement initiative.

SRBT will continue to modernize safety equipment where the opportunity affords itself. This includes, but is not limited to radiation and environmental protection equipment and tools.

The implementation of the latest revision of our maintenance program will see new strategies applied to our way of maintaining key equipment. This includes the concepts of a master equipment list, and procurement of critical spare parts. Although these concepts are typically applied in Class 1A facilities, management felt the safety benefits gained in our operations made incorporating these strategies well-worth the effort.

As part of our commitment to safety and mitigation during potential instances of emergency, the frequency of emergency drills will be increased. This will ensure that staff is always at the ready in case low-probability events or accidents should occur.

Continuous improvements to safety margins in all areas are a key pillar of our company, and this will always be the case. Safety is the paramount consideration, and is what drives how we perform our operations and licensed activities.

5.6 Proposed Operating Plan for the Next Licence Period

Going forth into the next licence period, SRBT plans to continue to safely and compliantly operate the facility to produce self-luminous lighting technology, while remaining well within existing licensed limits. Operation of the facility will continue to be performed routinely as they have throughout the current licence term.

We plan to continue to grow the business in a sustainable fashion, and to continue to offer quality products to our customers. It is projected that year-to-year increases in tritium production will be on the order of ten percent or less.

5.7 Significant Activities Envisaged Beyond the Next Licensing Period

At this time, there are no significant activities envisaged beyond the next licensing period.

The current vision for the operation of the facility ten years in the future does not significantly deviate in strategy from the operations that have occurred during the current licence period, or for the coming period.

There is no limiting timeframe associated with the facility that would invoke the initiation of facility decommissioning. Although the PDP has been revised, and will be kept current, SRBT has not established a future anticipated date where this process will be executed.

5.8 Other Authorities and Regulations that SRBT Must Abide By

Authorities

Note: This list only consists of authorities that have specific, periodic jurisdictional oversight or engagement with SRBT as a business.

It is not intended to capture authorities to whom all Canadian businesses are subject to, such as law enforcement, financial regulatory bodies, human rights commissions, etc.

SRBT is subject to the authority of the following organizations:

- Ontario Ministry of the Environment
- Ontario Ministry of Labour
- Human Resources and Skills Development Canada
- The City of Pembroke (local bylaws)

Regulations

Note: This list only consists of regulations that apply to SRBT due to the specific nature of our business.

It is not intended to capture regulations which apply to all Canadian businesses or corporations, such as the Income Tax Regulations.

The following specific regulations apply to SRBT by virtue of our activities:

- Regulations pertaining to the environment by the Ontario government, as relating to the emission of gaseous hazardous substances.

5.9 Permits, Certificates or Licenses Issued to SRBT by Other Authorities

1. Certificate of Approval (Air) #5310-4NJQE2, issued by the Ontario Ministry of the Environment

5.10 Description of Duties for Other Authorities or Organizations

SRBT does not owe any duties to other authorities or organizations, other than those listed in section 5.8 and 5.9 of this application.

5.11 Derived Release Limits for the Facility

The approved version of the Derived Release Limits for the SRBT facility is included as Appendix {15} to this application.

A DRL document has been developed in line with the guidance and requirements of N288.1-08, and is currently in the process of review and comment by senior management.

References

[1] Letter from M. Rinker (CNSC) to S. Levesque (SRBT), *Application for the Renewal of SRB Technologies (Canada) Inc. Nuclear Substance Processing Facility Operating Licence NSPFOL-13.00/2015,* dated May 23, 2014.

[2] Email from N. Petseva (CNSC) to J. MacDonald (SRBT), *RE: Request for Revised Target Date for Submission of SRBT Licence Renewal Application,* dated August 19, 2014.

[3] Email and Letter from S. Levesque (SRBT) to M. Rinker (CNSC), *Confirmation of Gap Analysis – CSA Standard N286-12,* dated July 17, 2014.

[4] Email from S. Levesque (SRBT) to N. Petseva (CNSC), *Re: Request for implementation plan regarding REGDOC-2.2.2-Personnel Training,* dated June 24, 2014.

[5] Letter from M. Rinker (CNSC) to S. Levesque (SRBT), *Implementation of CSA N393: Fire Protection for Facilities that Process, Handle, or Store Nuclear Substances,* dated June 2, 2014.

[6] Letter from S. Levesque (SRBT) to N. Petseva (CNSC), *SRBT Scope and Implementation Plan – REGDOC 2.2.2, Personnel Training,* dated August 28, 2014. Also, email in reply from N. Petseva (CNSC), dated September 2, 2014.

[7] Letter from S. Levesque (SRBT) to N. Petseva (CNSC), *Submission of Documents to Support Closure of SRB-2012-06-20-A4,* dated July 25, 2014.

[8] Draft REGDOC 2.10.1, provided during a site visit by CNSC staff on June 11, 2014. See http://www.nuclearsafety.gc.ca/pubs_catalogue/uploads/REGDOC-2-10-1-Emergency-Preparedness-Programs.pdf

[9] Email from S. Levesque (SRBT) to N. Petseva (CNSC), *Re: Response to CNSC Staff Letter Dated June 10, 2014,* dated July 31, 2014.

Acronyms

AED	Automatic External Defibrillator
ALARA	As Low as Reasonably Achievable
Bq	Becquerel
CLC	Canada Labour Code
CNSC	Canadian Nuclear Safety Commission
CPR	Cardiopulmonary Resuscitation
CSA	Canadian Standards Association
DRL	Derived Release Limits
EMP	Environmental Monitoring Program
EMS	Environmental Management System
GBq	gigabecquerel
HT	Elemental Tritium
HTO	Tritium oxide
IAEA	International Atomic Energy Agency
kBq	kilobecquerel
LLW	Low-level Waste
LSC	Liquid Scintillation Counting
mSv	millisievert
NFPA	National Fire Protection Association
NSCA	Nuclear Safety and Control Act
NSPFOL	Nuclear Substance Processing Facility Operating Licence
NSRDR	Nuclear Substance and Radiation Devices Regulations
PDP	Preliminary Decommissioning Plan
PIP	Public Information Program
PUTT	Pyrophoric Uranium Tritium Trap
REGDOC	Regulatory Document
SAR	Safety Analysis Report
SAT	Systematic Approach to Training
SCA	Safety and Control Area
SRBT	SRB Technologies (Canada) Incorporated
TBq	terabecquerel
VLLW	Very Low-level Waste

List of Appendices

Appendix	Title
01	Letter from Owner of Site 2014
02	N286-12 Gap Analysis and Implementation Plan
03	Quality Manual (to be submitted September 12)
04	List of Programs and Subordinate Procedures
05	Safety Analysis Report
06	Radiation Safety Program (to be submitted September 12)
07	RSO-009: Tritium Inventory Management
08	RSO-029: Nuclear Substances Inventory Management
09	Preliminary Decommissioning Plan
10	CNSC Certificates – Manufactured Devices
11	Systematic and Qualitative Analysis of Tritium Sources 2007
12	Release Limit Rationale 2007
13	Comprehensive Report Groundwater Studies
14	Release Limit Rationale 2009
15	2006 SRBT Derived Release Limits
16	Hypothetical Incidents and Scenarios 2008
17	Fire Protection Program
18	Emergency Plan
19	Maintenance Program, Rev. 5
20	Maintenance Program, Rev. 4
21	Licence Limits, Action Levels and Administrative Limits
22	Health and Safety Policies and Procedures
23	Hazard Prevention Program
24	Training Information – Hazard Identification & Instructions in Workplace Health and Safety
25	Contractor Management Program
26	Environmental Management System
27	EMS Objectives and Targets

28 EMS Significant Environmental Aspects

29 Environment Monitoring Program Document

30 RSO-006: Weekly Stack Monitoring

31 MOE Certificate of Approval 5310-4NJQE2, with Summary Table

32 Waste Management Program

33 RSO-013: Liquid Effluent Assessment

34 RSO-005: Radioactive Waste Consignment Preparation

35 RSO-023: Waste Handling

36 RSO-025: Interim Preparation and Storage of Waste

37 SHP-series of procedures (001 – 012)

38 List of Hazardous Substances

39 Public Information Program

40 Reference Matrix for Regulatory Requirements of Licence Applications