Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

Licence Conditions Handbook **Effective date: July 01, 2010**
(LCH-SRBT-R000)

Compliance Framework Document associated to the SRB Technologies (Canada) Inc. Nuclear Substance Processing Facility Operating Licence

NSPFOL-13.00/2015 Effective: July 1, 2010

SIGNED at OTTAWA this 30th day of July, 2010

B.R. Ravishankar
Director, Processing and Research Facilities Division,
Directorate of Nuclear Cycle and Facilities Regulation
CANADIAN NUCLEAR SAFETY COMMISSION

Canada

Revision History:

Effective Date	Rev.#	LCH E-DOCS #	Section(s) changed	Description of the Changes	E-DOCS #
2010-07-01	0	3572664	N/A	Document prepared for SRBT licence NSPFOL 13.00/2015	N/A

TABLE OF CONTENTS

1. INTRODUCTION

1.1 BACKGROUND

The new licensing philosophy of the Canadian Nuclear Safety Commission (CNSC) is to have a licence and an associated Licence Conditions Handbook.

The new Nuclear Substance Processing Facility Operating Licence (NSPFOL) contains clear and concise licence conditions, grouped by Safety and Control Areas, which:

- identify programs that must be implemented and maintained by the licensee, which is based on information submitted in their licence application to demonstrate to the Commission that they had adequate measures in place fulfilling all applicable licensing requirements; and
- contains a table of release limits, found in Appendix A, related to releases of tritium to atmosphere and sewer.

The associated Licence Conditions Handbook (LCH) contains:

- compliance criteria for licence conditions;
- appropriate delegation of authority to staff, when applicable;
- reference to licensee's documentation with version control;
- reference to codes and standards with version control;
- reference to CNSC regulatory documents;
- implementation dates with transition measures when introducing new codes, standards, or regulatory documents; and
- specific commitments made by the licensee to ensure compliance with CNSC staff expectations.

The Commission authorises the following CNSC staff to approve changes to this LCH:

- Director, Processing and Research Facilities Division.
- Director General, Directorate of Nuclear Cycle and Facilities Regulation.
- Executive Vice-President and Chief Regulatory Operations Officer, Regulatory Operations Branch.

1.2 PURPOSE OF LCH

The objective of this document is to establish and consolidate into one document the compliance framework related to the SRB Technologies (Canada) Inc. (SRBT) Nuclear Substance Processing Facility Operating Licence. This document is to be used by the licensee and CNSC staff. It specifies CNSC staff expectations with regards to the compliance framework related to the SRB Technologies NSPFOL-13.00/2015.

This includes:

- Defining the licensing basis;
- Explaining the regulatory context related to each licence condition; and
- Identifying verification criteria for each licence condition.

1.3 CNSC ADMINISTRATIVE CONTROL PROCESS

1.3.1 Change Control

An effective change control process is applied to the LCH to ensure that:

- preparation and use of this document is properly controlled;
- all referenced documents are correctly identified and maintained; and
- changes are conducted in accordance with CNSC Regulatory Policy P-299 *Regulatory Fundamentals*, dated April 2005.

Changes can be requested by either CNSC staff or the licensee. For changes requested by CNSC staff, the licensee is to be consulted on proposed changes.

Any changes to this document will require the approval of the Director of the Processing Research and Facilities Division (PRFD), CNSC, except that amendments to the licence conditions handbook related to third party monitoring must be approved by Executive Vice-President and Chief Regulatory Operations Officer, Regulatory Operations Branch.

1.3.2 Change Control Procedure

A request to change this document can be initiated by either CNSC staff or the licensee, as detailed in Appendix A of the LCH. The change will be assessed by CNSC staff and a recommendation to proceed will be made to the PRFD Director or Director General, Directorate of Nuclear Cycle and Facilities Regulation or Executive Vice-President, Regulatory Operations Branch.

For changes requested by CNSC staff, the licensee is to be consulted on proposed changes.

Approval must then be obtained by the PRFD Director, Director, Processing and Research Facilities Division, or Director General, Directorate of Nuclear Cycle and Facilities Regulation or Executive Vice-President, Regulatory Operations Branch.

The LCH will then be updated and distributed.

1.3.3 Dispute Resolution

In case of any dispute between the licensee and CNSC staff, related to changes to the LCH, the following steps must be followed on each STAGE of the process:

- a meeting with the appropriate parties will be scheduled by the requester;
- the rationale supporting the decision and the decision will be documented; and
- if any party is not satisfied with the decision, the next STAGE of the process must be initiated.

STAGE 1:

The resolution process is at the Director's level. The final decision will be made by the PRFD Director. If any party is not satisfied with the final decision, STAGE 2 must be initiated.

STAGE 2:
The resolution process is at the Director General's level. The final decision will be made by the Director General**,** Directorate of Nuclear Cycle and Facilities Regulation. If any party is not satisfied with the final decision, STAGE 3 must be initiated.

STAGE 3:

The resolution process is at the Executive Vice-President's level. The final decision will be made by the Executive Vice-President and Chief Regulatory Officer. If any party is not satisfied with the final decision, STAGE 4 must be initiated.

STAGE 4:

The resolution process is at the Commission level during a Commission Meeting. The decision will be made by the Commission. The decision will be final.

1.3.4 Record Management

In order to track changes to the LCH, any change documentation will be archived in the CNSC Records Office and e-Access (CNSC electronic Information Management System). The document revision history will also be referenced in the Revision History section of the LCH.

1.3.5 Distribution

A copy of the updated version of the LCH will be provided to the licensee and made available to all relevant CNSC staff through the CNSC electronic document management system.

2. DESCRIPTION OF THE SECTIONS IN THE NUCLEAR SUBSTANCE PROCESSING FACILITY OPERATING LICENCE

2.1 SECTION I – LICENCE NUMBER

The alpha numeric expression NSPFOL-13.00/2015 stems from the CNSC standard convention for identifying licences. The following table provides a description of each identifier used in the expression:

Identifier	Description
NSPFOL	Nuclear Substance Facility Operating Licence
13	Corresponding facility (13 = SRB Technology)
00	Licence version number (00 = Initial licence, 01 = Amendment No.1, etc.)
2015	Expiration year

2.2 SECTION II – LICENSEE

Provides the name and the address of the person or the corporate entity that holds the licence, which is referred hereinafter as the "licensee", which is in this case SRB Technologies (Canada) Inc. (SRBT).

2.3 SECTION III – LICENCE PERIOD

Identifies the duration for which the licence is valid, which in this case, for NSPFOL-13.00/2015, is from July 1, 2010 to June 30, 2015, unless suspended, amended, revoked, or replaced.

2.4 SECTION IV – LICENSED ACTIVITIES

This section identifies the activities that are being licensed. The box below contains a copy of the text in the licence. These are from the list of activities described in section 26 of the *Nuclear Safety and Control Act*.

This licence authorizes the licensee to:

a) operate a tritium processing facility (hereinafter "the facility") at the location named in Part II of this licence;
b) possess, transfer, use, process, manage, and store the nuclear substances that are required for, associated with, or arise from the activities described in a); and
c) possess a maximum of 6000 terabecquerel of tritium in any form.

The operation of the facility is subject to the *Nuclear Safety and Control Act*, its associated Regulations and the licence conditions set out in the NSPFOL.

SRBT is authorized to operate the facility located at 320-140 Boundary Road, Pembroke, Ontario.

SRBT is authorized to possess, transfer, use, process, manage, and store the nuclear substances that are required for, associated with, or arise from the operation of the facility. This includes the possession of depleted uranium for the manufacture of tritium traps to store or hold tritium.

SRBT can possess up to a maximum of 6000 terabecquerel of tritium in any form.

2.5 SECTION V – EXPLANATORY NOTES

a) Unless otherwise provided for in this licence, words and expressions used in this licence have the same meaning as in the *Nuclear Safety and Control Act* and associated Regulations.

b) The content of Appendix A, "RELEASE LIMITS", attached to this licence forms part of the licence.

c) The "SRBT Licence Conditions Handbook (LCH)" provides compliance verification criteria in order to meet the conditions listed in the licence.

During CNSC compliance and follow-up (enforcement) activities, CNSC staff will verify and ensure that the licensee is complying with the compliance verification criteria established for the applicable licence condition(s).

2.6 SECTION VI – CONDITIONS

This section of the NSPFOL lists the licence conditions that SRBT shall follow. Section 3 of the LCH provides compliance verification criteria for each licence condition. For clarity, CNSC staff has grouped the licence conditions, to the extent possible, under the most appropriate Safety and Control Area as found on the licence.

3. COMPLIANCE FRAMEWORK FOR EACH LICENCE CONDITION

During the licence period, CNSC staff will conduct compliance activities to ensure that the licensee conducts the licensed activities in accordance with the licensing basis. In the NSPFOL, licence conditions have been grouped by SCA. This section provides a copy of the licence conditions from the licence in each of the specific Safety and Control Areas (SCA). It then gives further details and guidance on how to achieve and determine compliance against the licence condition.

This section further details and provides guidance to clarify how to achieve and determine compliance against the licence conditions.

The last part of each subsection is called Document Version Control and includes the various documents that are part of the handbook and which CNSC staff will measure compliance against, as appropriate. This is the relevant SRBT governing document(s) that were reviewed and accepted against licensing regulatory requirements, which was part of the licence renewal. Given the size and complexity of the SBRT facility, there are only a small number of documents that impact many safety and control areas.

SRBT's implementation of the programs is assessed via CNSC Compliance Program and will be measured against defined performance objectives and verification compliance criteria.

Any deficiencies revealed through compliance verification activities are dealt with through existing CNSC graduated enforcement approach.

3.1 GENERAL

The SRBT licence contains general licence conditions as shown below.

Licence Condition:

1.1 The licensee shall conduct the activities described in Part IV of this licence in accordance with the licensing basis described in the LCH:

a) Changes to the safety and control measures described in the application and the documents needed to support that application are permitted provided that the objective of the licensing basis is met.

b) Changes that are outside of the boundary conditions set by the licensing basis are not permitted without the prior written approval of the Canadian Nuclear Safety Commission (hereinafter "the Commission").

1.2 The licensee shall give written notification to the Commission of any changes made to the documents needed to support the licence application.

The licence is issued by the Commission pursuant to section 24 of the *Nuclear Safety and Control Act*. Throughout the licence period, it is very important to have the appropriate regulatory control and oversight of the licensing basis**.**

The licensing basis sets the boundary conditions for acceptable performance at a regulated facility or activity, and thus establishes the basis for the CNSC's compliance program in respect of that regulated facility or activity.

Licensing Basis for SRBT:

The licensing basis for SRBT is comprised of:

a) the requirements set out in the applicable laws and regulations, as detailed in Appendix C;
b) the conditions and safety and control measures described in the facility's or activity's licence and the documents directly referenced in that licence; and
c) the safety and control measures described in the licence application and the documents needed to support that licence application.

For clarification, documents needed to support the licence application are those documents which demonstrate that the applicant is qualified to carry out the licensed activity, and that appropriate provisions are in place for the protection of worker and public health and safety, for the protection of the environment, and for the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

The documents referenced in b) and c) are listed below and on p.12 of this LCH.

- SRB Technologies (Canada) Inc. Quality Manual
- SRB Technologies (Canada) Inc. Radiation Safety Program
- SRB Technologies (Canada) Inc. Environmental Management System
- SRB Technologies (Canada) Inc. Facility Security Program
- SRB Technologies (Canada) Inc. Safety Analysis Report
- SRB Technologies (Canada) Inc. Emergency Plan

Compliance Verification Criteria:

SRBT is required to operate the nuclear facility in accordance with the licensing basis. This means that SRBT shall conduct the licensed activities in accordance with:

a) the regulatory requirements set out in the applicable laws and regulations;
b) the conditions set out in the NSPFOL; and
c) the safety and control measures described in the licence application and the documents needed to support that licence application.

SRBT has submitted an application that includes many documents and procedures for the operation of the facility. The six documents identified above are considered the documents that contain the safety and control measures that demonstrate that the applicant is qualified to carry out the licensed activity, and that appropriate provisions are in place for the protection of worker and public health and safety, for the protection of the environment, and for the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

As continuous improvements are required under SRBT's Quality Manual, SRBT's programs and documents will evolve throughout the licence period. This is why provisions have been made under licence condition 1.1 to allow SRBT to make changes to item (iii) of the licensing basis. These changes shall be made as further discussed below.

For Licence Condition 1.1 a):

SRBT will review programs and processes and benchmark these against industry best practice, as per their internal processes. SRBT is encouraged to make continuous improvements, but at all times shall remain within the licensing basis authorized by the Commission. If the changes made improve the safety of the facility and remain within the licensing basis, then SRBT does not need prior written approval of the Commission.

However, under Licence condition 1.2, SRBT is required to notify the Commission when changes are made to the six documents noted above. For these documents, the expectation is that SRBT submit the document to CNSC staff, and CNSC staff will have time to review the changes made to this documents prior to implementation and verify that all changes remain within the licensing basis.

For Licence Condition 1.1 b):

SRBT requires prior written approval of the Commission for changes that are outside of the boundary conditions set by the licensing basis, such as they are:

- not compliant with a regulatory requirements;
- not compliant with a licence condition;
- adversely affecting the safe conduct of the licensed activities; or
- causing hazards or risks different in nature or greater in probability or magnitude than those stated in the safety analysis for the facility.

Document Version Control:

Licensing Basis Documents				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	SRB Technologies (Canada) Inc. Quality Manual	G	May 16, 2008	3249594
2	SRB Technologies (Canada) Inc. Radiation Safety Program	VIII	May 16, 2008	3249591
3	SRB Technologies (Canada) Inc. Environmental Management System	D	May 27, 2008	3252736
4	SRB Technologies (Canada) Inc. Facility Security Program	n/a	Nov. 3, 2009	3458113
5	SRB Technologies (Canada) Inc. Safety Analysis Report	II	July 4, 2006	1318426
6	SRB Technologies (Canada) Inc. Emergency Plan	2	September 15, 2008	3287442

Licence Condition:

1.3	The licensee shall, in the event of any conflict or inconsistency between licence conditions or codes, standards or regulatory documents referenced in this licence, direct the conflict or inconsistency to the Commission or a person authorized by the Commission for regulatory interpretation.

The CNSC is the regulatory body responsible to provide the regulatory oversight for all nuclear facilities in Canada. The legal interpretation shall be provided by the regulatory body.

The generic statement: “or a person authorized by the Commission” allows the Commission to delegate certain authority (consent) to staff. Delegation of consent by the Commission applies to the following staff: Director, Processing and Research Facilities Division; Director General, Directorate of Nuclear Cycle and Facilities Regulation; and Executive Vice-President and Chief Regulatory Operations Officer, Regulatory Operations Branch.

Any conflict or inconsistency identified would be discussed between the licensee (SRBT) and CNSC staff and/or Commission where necessary. The outcome of such discussions will be documented to ensure a common understanding.

3.2 SCA – MANAGEMENT SYSTEM

The Management System covers the framework which establishes the processes and programs required to ensure that SRBT operates safely and continuously monitors its performance and fosters a healthy safety culture.

Licence Conditions:

2.1	The licensee shall implement and maintain a management system for the facility.
2.2	The licensee shall give written notification of any changes to the programs or documents referenced in the management system prepared to meet condition 2.1.
2.3	The licensee shall maintain and implement a process for reporting to the Commission that includes reporting of all events required by the *Nuclear Safety and Control Act* and its Regulations, and routine reports on the results of monitoring programs. The process shall define the frequency of the routine reports.
2.4	The licensee shall prepare an annual compliance and performance report.
2.5	The licensee shall implement and maintain a program for public information for the facility, including a public disclosure protocol.

SRBT has a management system described in the Quality Manual which was reviewed and accepted by CNSC staff. The implementation of the management system should be compliant with that manual.

Under condition 2.2 SRBT must notify CNSC in writing when making changes to the Quality Manual, Radiation Safety Program, Environmental Management System, Facility Security Program, Safety Analysis Report or Emergency Plan.

Concerning reporting, in addition to the reporting requirements in the *Nuclear Safety and Control Act* and its Regulations, the process under licence condition 2.3 includes the following reports detailed below. Reports of failures or events should be made verbally within 24 hours of becoming aware of the event and followed up with an e-mail to confirm the occurrence:

a) If any action level set out in the document SRBT Licence Limits, Action Levels and Administrative Limits, listed below, is reached or exceeded, the SRBT shall notify the CNSC within 24 hours of becoming aware of the matter and shall file a final written report within 21 working days of becoming aware of the matter.

b) Failure of equipment, component, or process system, or an inappropriate procedure or human action that resulted in, or could have resulted in the release of a nuclear substance which is measurable on the chart recorder used for real time monitoring at a level equal to or greater that 10,000 micro-curies per meter cubed for a duration of one hour at anytime during the course of a working day.

c) SRBT shall prepare and submit to the CNSC on a quarterly basis, the results of the Environmental Monitoring Program including quality assurance and quality control information, plus tritium effluent released to atmosphere and tritium effluent released to sewer.

d) SRB shall provide, to the CNSC, the results of the tritium concentration in well water at the locations specified in section 3.10 of this LCH, within 30 days of monitoring the wells.

For licence condition 2.4, the Annual Compliance Report should be submitted to the CNSC by March 31 of each year, covering the previous calendar year's operation including the following information:

i. Operational review including equipment and facility performance and changes, significant events/highlights that occurred during the year.
ii. Information on production including verification that limits specified in the licence was complied with.
iii. Modifications including changes in organization, administration and/or procedures that may affect licensed activities.
iv. Health physics information including operating staff radiation exposures including distributions, maxima and collective doses; review of action level or regulatory exceedence(s), if any, historical trending where appropriate.
v. Environmental and radiological compliance including results from environmental and radiological monitoring, assessment of compliance with licence limits, historical trending where appropriate, and quality assurance/quality control results for the monitoring.
vi. Facility effluents including gaseous and liquid effluent releases of nuclear substances from the facility, including unplanned releases of radioactive materials and any releases of hazardous substances.
vii. Waste management including types, volumes and activities of solid wastes produced, and the handling and storage or disposal of those wastes.
viii. Updates regarding activities pertaining to safety, fire protection, security, quality assurance, emergency preparedness, research and development, waste management, tritium mitigation and training (as applicable).
ix. Compliance with other federal and/or provincial Regulations.
x. A summary of non-radiological health and safety activities, including information on minor incidents and lost time incidents.
xi. Public information initiatives.
xii. Forecast for coming year(s).

The compliance expectation is that SRBT have a Public Information Program that is based on the expectations found in CNSC Regulatory Guide G-217 *Licensee Public Information Programs*, January 2004, implement and maintain the program.

The public disclosure protocol in licence condition 2.5 should describe the information and the medium of disclosure in regards to situations and events at the site. The protocol is to contain, as a minimum, the following information:

a) Disclosures of non-routine situations and events:

   i. Regulatory reporting requirements;
   ii. Events that could have off-site effects or results in media attention, including fires, earthquakes, serious vehicle, or industrial accidents, and significant business developments; and
   iii. Reporting of radiological and non-radiological releases, above self-declared, low-level thresholds.

b) Disclosures of routine program results:

   i. Reporting of environmental monitoring program results.

Additional features of the two types of public disclosure, non-routine and routine, include:

a) Time limits for disclosure of information. To ensure that the information is disclosed in a timely manner, licensees are required to establish time limits for notification of situations, events, or program results; and

b) Medium for disclosure of information. Licensees are required to describe what means will be used to achieve the objective of informing the public.

Document Version Control:

SRBT Quality Management				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	SRB Technologies (Canada) Inc. Quality Manual	G	May 16,2008	3249594

3.3 SCA – HUMAN PERFORMANCE MANAGEMENT – TRAINING

Licence Condition:

3.1 The licensee shall implement and maintain a program for training staff for the facility.

CNSC expect SRBT to implement and maintain a training program for their staff and contractors. SRBT outlines the training program in the Quality Manual and Radiation Safety Program and the Environmental Management System Document. CNSC staff will monitor training as part of normal compliance activities, and will initiate follow-up, if required.

Document Version Control:

SRBT Training				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	Quality Manual	G	May 16,2008	3249594
2	Radiation Safety Program	VIII	May 16,2008	3249591
3	Environmental Management System	D	May 27, 2008	3252736

3.4 SCA – OPERATING PERFORMANCE

It is a requirement of the *Class I Nuclear Facilities Regulations* under paragraph 6(d) that an application for a licence to operate a Class I nuclear facility shall contain the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility.

Licence Conditions:

4.1 The licensee shall implement and maintain a program for operation of the facility.

4.2 The operating program shall provide direction for safely operating the facility and shall, as a minimum, reflect safety analysis report referred to in condition 5.1.

4.3 The licensee shall ensure that its workers handle radioactive nuclear substance in accordance with written work procedures. These procedures shall be provided to all workers and shall be available wherever radioactive nuclear substances are handled or stored.

4.4 Unsealed source material shall be stored on uranium beds or in the handling volumes of the gas fill rigs.

4.5 The licensee shall establish and maintain, in addition to any record required to be maintained pursuant to the *Nuclear Safety and Control Act* and its Regulations, full and accurate records to show:

a) the acquisition of nuclear substances including the quantity received, the form of the substance, and the name of the vendor;

b) an inventory of all radioactive nuclear substances at the facility; and

c) the disposition of all nuclear substances acquired for use or processed by the facility, including the name and address of the recipient, a copy of the recipient's licence (if applicable), the quantity of radioactive nuclear substance, and the date of shipment.

The program for operation of this facility is to identify the main safety objectives and responsibilities of management with respect to its safe operation.

CNSC staff will ensure adequate conduct of operations as part of normal compliance activities, and will initiate follow-up, if required.

SRBT's documents outlining the programs for operating the facility are found in the documents listed below and SRBT is to comply with them.

An area that shall be included is the safe operation of the facility as it pertains to fire protection. The compliance expectation is that SRBT shall design, build, modify and otherwise carry out work related to the facility with potential to impact protection from fire in accordance with the *National Building Code*, 2005, the *National Fire Code*, 2005, and *National Fire Protection Association*, NFPA-801, 2008 edition: Standard for Fire Protection for Facilities Handling Radioactive Materials. In addition, SRBT shall operate, maintain, test, and inspect the facility in accordance with these codes.

In addition SRBT shall continue its practice of not processing tritium during precipitation.

SRBT shall not operate the reclamation unit that is currently found in the facility.

Document Version Control:

SRBT's Operating Performance				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	SRB Technologies (Canada) Inc. Quality Manual	G	May 16,2008	3249594
2	SRB Technologies (Canada) Inc. Radiation Safety Program	VIII	May 16,2008	3249591
3	SRB Technologies (Canada) Inc. Environmental Management System	D	May 27, 2008	3252736
4	SRB Technologies (Canada) Inc. Facility Security Program	n/a	Nov. 3, 2009	3458113

3.5 SCA – SAFETY ANALYSIS

Safety analysis is a systematic evaluation of the potential hazards associated with the conduct of the activities within the facility and considers the effectiveness of preventative measures and strategies in reducing the effects of such hazards.

Licence Condition:

5.1	The licensee shall have safety analysis documentation that describes the safety analysis for the facility.

CNSC staff expects that SRBT maintains the safety analysis document described below to ensure it adequately considers the hazards associated with the facility.

Document Version Control:

SRBT Safety Analysis				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	SRB Technologies (Canada) Inc. Safety Analysis Report	II	July 4, 2006	1318426

3.6 SCA – PHYSICAL DESIGN

SRBT is to maintain the physical design of the facility to ensure that the equipment and processes accurately reflected in safety analysis.

Licence Condition:

6.1 The licensee shall not make any change to the design of, or equipment at the nuclear facility, that would introduce hazards different in nature or greater in probability than those considered by the safety analysis, without the prior written approval of the Commission or a person authorized by the Commission.

The compliance expectation is that continuous improvements to the safety of the facility are encouraged and therefore not all changes to the design or equipment of the nuclear facility require approval by the Commission. The expectation is that all design and equipment changes are subject to SRBT's Quality Manual.

In addition, the compliance expectation is that modifications with potential to impact protection from fire are made in accordance with the *National Building Code*, 2005, the *National Fire Code*, 2005, and *National Fire Protection Association*, NFPA-801, 2008 edition: Standard for Fire Protection for Facilities Handling Radioactive Materials.

Any changes to SRBT's facility will be identified to CNSC staff.

Document Version Control:

SRBT Physical Design				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	SRB Technologies (Canada) Inc. Safety Analysis Report	II	July 4, 2006	1318426

3.7 SCA – FITNESS FOR SERVICE

This includes programs that ensure all equipment is available to perform its intended design function when called upon to do so.

Licence Condition:

7.1	The licensee shall implement and maintain a program for maintenance for the facility.
7.2	The licensee shall implement and maintain a program for periodic inspection and testing for the facility.

The maintenance program includes testing and inspection and must be performed in such a manner that the availability, reliability and effectiveness of the facility remain consistent with the design and analysis documents submitted in support of the licence application.

The program shall document the frequency that the various maintenance, and inspection and testing is performed.

In addition, the compliance expectation is that SRBT shall operate, maintain, test, and inspect the facility in accordance with the *National Fire Code*, 2005, and *National Fire Protection Association*, NFPA-801, 2008 edition.

Document Version Control:

SRBT Fitness for Service				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	SRB Technologies (Canada) Inc. Safety Analysis Report	II	July 4, 2006	1318426
2	SRB Technologies (Canada) Inc. Quality Manual	G	May 16, 2008	3249594

3.8 SCA – RADIATION PROTECTION

This program must ensure that contamination and radiation doses received are monitored and controlled.

Licence Conditions:

8.1	The licensee shall implement and maintain a program for radiation protection for the facility.
8.2	The licensee shall notify the Commission within 24 hours of becoming aware that an action level has been exceeded and shall file a written report within 21 working days of becoming aware of the matter.

The radiation protection program is described in detail in the document referenced below. Compliance against this document is monitored by CNSC staff and corrective actions enforced, if necessary.

The action levels against which compliance is measured are:

PERSON	**PERIOD**	**ACTION LEVEL (mSv)**
Nuclear energy worker	Quarter of a year	2.6
	1 year	5.0
	5 years	25.0
Pregnant nuclear energy worker	Balance of the pregnancy	3.5
PARAMETER		**ACTION LEVEL**
Bioassay result		1,000 Bq/ml for any period

Document Version Control:

SRBT Radiation Safety Program				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	Radiation Safety Program	VIII	May 16,2008	3249591

3.9 SCA – CONVENTIONAL HEALTH AND SAFETY

The Safety and Control Area "Conventional Health and Safety" covers the implementation of a program to manage workplace safety hazards.

Licence Condition:

9.1	The licensee shall implement and maintain a program for occupational health and safety for the facility.

Class I nuclear facilities are federally regulated and therefore must be in compliance with the *Canada Labour Code Part II.*

3.10 SCA – ENVIRONMENTAL PROTECTION

The Safety and Control Area "Environmental Protection" covers programs that identify control and monitor all releases of radioactive and hazardous substances from the facility.

Licence Condition:

10.1	The licensee shall implement and maintain an environmental protection program for the facility.
10.2	The licensee shall control, monitor and record releases of tritium to the environment from the nuclear facility such that the releases do not exceed the release limits specified in Appendix A.
10.3	The licensee shall control and monitor the releases of hazardous substances.
10.4	The licensee shall notify the Commission within 24 hours of becoming aware that an action level for environmental releases has been exceeded and shall file a written report within 21 working days of becoming aware of the matter.

SRBT shall have a well documented environmental protection program for the facility. SRBT shall implement and maintain the Environmental Protection Program as described in the documents listed below.

An Environmental Protection Program identifies, control and monitor all releases of radioactive and hazardous substances from the nuclear facility. It includes effluent and environmental monitoring, emission data, unplanned releases, assessment of environmental protection systems, and compliance with federal and provincial environmental regulations. It is to include an environmental management system.

The following action levels have been set for the purpose of protection of members of the public from unreasonable risk from releases of radionuclides into the environment from the normal operation of the licensed facility and will be used for CNSC compliance verification.

Any aerial releases of tritium to the environment are to be reported to the CNSC, if they exceed the following Action Levels.

NUCLEAR SUBSTANCE AND FORM	WEEKLY ACTION LEVEL (GBq)
Tritium as tritium oxide (HTO)	840
Total tritium as tritium oxide (HTO) and tritium gas (HT)	7,753

MEASURE ON THE CHART RECORDER
10,000 μCi/m^3 For a duration of one hour

In addition for purposes of compliance and verification, the Environmental Monitoring Program, part of the Environmental Protection Program, shall include a Groundwater Monitoring Program or procedures that include sampling of groundwater at the wells at the following locations at the frequency specified below.

Location	Frequency
On-site wells	Monthly
CN wells	The months of March, July and November
Residential wells	The months of March, July and November

CNSC staff will verify that the activities of the environmental monitoring program are conducted by a qualified third party.

Document Version Control:

SRBT Environmental Protection Program.				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	Environmental Management System	D	May 27, 2008	3252736
2	Radiation Safety Manual	VIII	May 16,2008	3249591

3.11 SCA – EMERGENCY MANAGEMENT AND FIRE PROTECTION

The Safety and Control Area “Emergency Management and Fire Protection” covers emergency plans and fire protection. Procedures must exist for emergencies and for fire protection.

Licence Conditions:

11.1	The licensee shall implement and maintain a program for emergency preparedness to address on-site and off-site events which can affect the facility.
11.2	The licensee shall implement and maintain a program for fire protection for the facility.

SRBT shall have a documented emergency preparedness plan. This expectation is that this plan includes the information that is currently found in SRBT's Emergency Plan.

SRBT shall implement and maintain the fire protection program for the facility.

Compliance expectations are that SRBT arrange for annual third party reviews of compliance with the requirements of the *National Fire Code*, 2005, and *National Fire Protection Association*, NFPA-801, 2008 edition. These reviews should be carried out by one or more independent external agencies having specific expertise in this area.

In addition, as part of the fire protection, the expectations is that SRBT shall, prior to implementing any proposed modification of the facility with potential to impact protection from fire, submit the proposed modification for third party review of compliance with the *National Building Code*, 2005, the *National Fire Code*, 2005, and *National Fire Protection Association*, NFPA-801, 2008 edition: Standard for Fire Protection for Facilities Handling Radioactive Materials. This review should be carried out by one or more independent external agencies having specific expertise with such reviews.

Document Version Control:

SRBT Emergency Management and Fire Protection				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	Radiation Safety Manual.	VIII	May 16, 2008	3249591
2	Emergency Plan	2	September 15, 2008	3287442
3	Quality Manual	G	May 16, 2008	3249594

3.12 SCA – WASTE MANAGEMENT

The Safety and Control Area "Waste Management" covers internal waste-related programs which form part of the facility's operations up to the point where the waste is removed from the facility. It also covers the planning for decommissioning.

Licence Condition:

12.1 The licensee shall implement and maintain a program for waste management for the facility.

12.2 The licensee shall maintain a preliminary decommissioning plan for decommissioning the facility. This shall be reviewed every five years or when requested by the Commission or person authorized by the Commission.

The waste management program for SRBT is to include waste minimization, waste segregation and characterization, waste storage, processing and disposal.

Preliminary Decommissioning Plans must be prepared using the CNSC Regulatory Guide, G-219 *Decommissioning Planning for Licensed Activities,* June 2000. Following the acceptance of the plan by CNSC staff, this plan must be reviewed and revised every 5 years. The compliance expectation is that the preliminary decommissioning plan be at a minimum reviewed and revised in 2011 and every five years thereafter.

Document Version Control:

SRBT Waste Management				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	Radiation Safety Manual	VIII	May 16, 2008	3249591

3.13 SCA – SECURITY

Licence Condition:

13.1 The licensee shall implement and maintain a program for nuclear security at the facility.

SRBT must have a nuclear specific security program that covers facility security and security systems that SRBT is to comply with.

The Facility Security Program document is required to be updated and resubmitted to the CNSC whenever the licensee proposes to amend or update the program.

Document Version Control:

SRBT Security Program				
No	Description of Revision Change	Revision	Effective Date	E-DOCS #
1	Facility Security Program	n/a	Nov 3, 2009	3458113

3.14 SCA – SAFEGUARDS

The Safety and Control Area "Safeguards" covers the programs required for the successful implementation of the obligations arising from the Canada/IAEA Safeguards Agreement.

Licence Condition:

14.1 The licensee shall take all necessary measures to facilitate Canada's compliance with any applicable safeguards agreement.

14.2 The licensee shall provide the International Atomic Energy Agency, an International Atomic Energy Agency inspector or a person acting on behalf of the International Atomic Energy Agency with such reasonable services and assistance as are required to enable the International Atomic Energy Agency to carry out its duties and functions pursuant to a safeguards agreement.

SRBT does not have any specific licence conditions with respect to Canada's nuclear safeguards international agreements. The compliance expectations are that SRBT:

a) take all necessary measures to facilitate Canada's compliance with any applicable safeguards agreement;

b) provide the International Atomic Energy Agency, an International Atomic Energy Agency inspector, or a person acting on behalf of the International Atomic Energy Agency, with such reasonable services and assistance as are required to enable the International Atomic Energy Agency to carry out its duties and functions pursuant to a safeguards agreement;

c) grant prompt access at all reasonable times to all locations at the facility to an International Atomic Energy Agency inspector, or to a person acting on behalf of the International Atomic Energy Agency, where such access is required for the purposes of carrying on an activity pursuant to a safeguards agreement. In granting access, the licensee shall provide health and safety services and escorts as required in order to facilitate activities pursuant to a safeguards agreement;

d) disclose to the Commission, to the International Atomic Energy Agency or to an International Atomic Energy Agency inspector, any records that are required to be kept or any reports that are required to be made under a safeguards agreement;

e) provide such reasonable assistance to an International Atomic Energy Agency inspector or to a person acting on behalf of the International Atomic Energy Agency, as is required to enable sampling and removal or shipment of samples required pursuant to a safeguards agreement;

f) provide such reasonable assistance to an International Atomic Energy Agency inspector or to a person acting on behalf of the International Atomic Energy Agency, as is required to enable measurements, tests and removal or shipment of equipment required pursuant to a safeguards agreement; and

g) make such reports and provide such information to the Commission as are required to facilitate Canada's compliance with any applicable safeguards agreement.

3.15 CA – PACKAGING AND TRANSPORT

The Safety and Control Area "Packaging and Transport" covers the safe packaging and transport of nuclear substances and radiation devices to and from the licensed facility

Licence Condition:

15.1 The licensee shall implement and maintain a program for packaging and transport for the facility.

SRBT shall have a written procedure(s) that must be maintained to ensure compliance with the *Transportation of Dangerous Goods Regulations* and in the CNSC *Packaging and Transport of Nuclear Substances Regulations.*

3.16 SITE SPECIFIC

This section contains the specific requirements for licence conditions that are not associated with the Safety and Control Areas.

Licence Conditions:

16.1 The licensee shall comply with the payment schedule for arrears on the CNSC Cost Recovery Fees that has been accepted by the Commission.

16.2 The licensee shall maintain a financial guarantee for decommissioning that is acceptable to the Commission and payments to any decommissioning escrow account shall be according to the schedule accepted by the Commission.

16.3 The licensee shall submit to the Commission an annual Review Engagement Report reporting the gross revenue and profits of the company.

SRBT must make additional payments to the CNSC in accordance with the payment schedule that the Commission has approved, and is given in the Table below, Annual Fee Adjustment and Financial Guarantee Payment Schedules. This payment schedule is consistent with the payment schedule found in the previous licence. The final annual fee payment for September 2013 has been increased by $2068.

SRBT is required to maintain the financial guarantee, to ensure it remains valid and in effect and adequate to fund the preliminary decommissioning plan. If the preliminary decommissioning plan is revised, the expectation is that the financial guarantee is revised and submitted to the Commission for the Commission's acceptance.

Annual Fee Adjustment and Financial Guarantee Payment Schedules

	Annual Fee Adjustment payments	Decommissioning Escrow Account Deposits
September 30, 2010	$40, 000	
October 31, 2010		$47, 500
March 30, 2011	$20,000	
April 30, 2011		$30,000
September 30, 2011	$40,000	
October 31, 2011		$32,500
March 30, 2012	$20,000	
April, 30, 2012		$42,500
September 30, 2012	$40,000	
October 31, 2012		$50,000
March 30, 2013	$20,000	
April 30, 2013		$45,000
September 30,2012	$37,068	
October 31, 2013		$52,500
April 30, 2014		$52,608

The expectation is that SRBT deposit funds to the Escrow Account semi-annually in two instalments by October 31 and April 30 of each year, in accordance with the deposit schedule as set out above. To maximize the payments into the Escrow Account, SRBT is to make the following additional payments:

a) 50 cents per every dollar of additional profit over projection based on the previous six-month period.

b) Deposit interest earned from the escrow account back into the escrow account, enabling maximized fund build-up.

The compliance expectation is that SRBT submit a report to CNSC staff within five working days of the deposit to the escrow account detailed above that includes the amount deposited and the current value of the account including any accrued interest.

The compliance expectation is that SRBT submit to CNSC annually a Review Engagement Report within 120 days of the end of the licensees' fiscal year. The report is to be for the previous 12-month reporting the gross revenue and profits of the company for that period as prepared by independent charter accountants.

The compliance expectation is that in the event that the value of the escrow account is equal to the cost of full decommissioning referenced in licence condition 16.2 in advance of the deposit schedule set out above, SRBT will be released from the requirement of making additional deposits into the escrow account.

Appendix A – LCH Change Control Process and LCH Change Request Form

LCH Change Control Process

1. Initiate a change request using the LCH change request form on p. 31 of Appendix A

2. Assessment of the change by CNSC staff:

   - Determine if the requested change is in line with the LCH change control process
   - Determine whether the change is substantial enough to warrant an update to the LCH
   - Review licensee's documents if required

3. Draft changes

   - Consult with licensee on the draft changes

4. Director's Approval

5. Update the LCH to reflect the changes

   - Replace documents if required
   - Mark old version as outdated
   - Maintain a list of all changes

6. Send formal correspondence to the licensee along with the updated LCH.

7. Present the list of all changes to the Commission once a year.

LCH Change Request Form

Current LCH , Date and Edocs	000 Current Rev No.	**File Plan No. 2.02** **LCH Change Request Form** **E-Docs No. #######**

REVISION REQUEST INFORMATION

Name **Requestor** **CNSC** ☐ **Licensee** ☐	MM / DD / YY **Date of Request**

Proposed Changes:

Document Details- Title, Version, Date; New Title, Version, Date

Name **Line Manager**	**Concur with request** ☐ **Do Concur** ☐ **Do Not Concur**	**Initials**

LICENSEE ASSESSMENT OF LCH Request Form

Licensee	☐ YES ☐ NO **Proposed Change Acceptable**	MM / DD / YY **Date**

Assessment Comments:

SUBJECT MATTER EXPERT (SME) ASSESSMENT OF LCH Request Form

SME	☐ YES ☐ NO **Proposed Change Acceptable**	MM / DD / YY **Date**

Assessment Comments:

Appendix B – Definitions

Licensing Basis

The *Licensing Basis* for a regulated facility or activity is a set of requirements and documents comprising:

a) the regulatory requirements set out in the applicable laws and regulations;
b) the conditions and safety and control measures described in the facility's or activity's licence and the documents directly referenced in that licence; and
c) the safety and control measures described in the licence application and the documents needed to support that licence application.

Boundary Conditions

Boundary Conditions comprise the limits for possession, releases and commitments by the licensee as described in the licence, LCH, lisensee’s application package and Commission deliberations.

Appendix C – Regulatory Instruments

The licensing basis includes all applicable laws, regulations and requirements set out in several federal statutes and agreements including the following:

- *Nuclear Safety and Control Act*
- *General Nuclear Safety and Control Regulations*
- *Radiation Protection Regulations*
- *Class I Nuclear Facilities Regulations*
- *Nuclear Substances and Radiation Devices Regulations*
- *Packaging and Transport of Nuclear Substances Regulations*
- *Nuclear Security Regulations*
- *Nuclear Non-proliferation Import and Export Control Regulations*
- *Cost Recovery Regulations*
- *Canadian Nuclear Safety Commission rules of Procedure*
- *Canadian Nuclear Safety Commission By-laws*
- *Canada Labour Code, Part II*
- *Canadian Environmental Assessment Act*
- *Canadian Environmental Protection Act*
- *Transportation of Dangerous Goods Act*
- *National Building Code 2005*
- *National Fire Code 2005,*
- *National Fire Protection Association, NFPA 801: 2008 edition*:
  Standard for Fire Protection for Facilities Handling Radioactive Materials

The licensing basis also includes other federal, provincial and municipal regulations applicable, such as and not limited to the following:

- Ontario Ministry of Environment Regulations and laws including those for Protection of the Environment, and
- Environment Canada's Regulations for Protection of the Environment
- City of Pembroke's Municipal Bylaws
- Other relevant Federal, Provincial and Municipal Bylaws