



**SRB TECHNOLOGIES (CANADA) INC.**

320-140 Boundary Road  
Pembroke, Ontario, Canada, K8A 6W5  
Tel.: (613) 732-0055  
Fax: (613) 732-0056  
E-Mail: [sales@betalight.com](mailto:sales@betalight.com)  
Web: [www.betalight.com](http://www.betalight.com)

Mr. Rinat Rashapov  
Project Officer, Nuclear Processing Facilities Division  
Canadian Nuclear Safety Commission  
P.O. Box 1046, Station B  
Ottawa, Ontario  
Canada  
K1P 5S9

**Subject: 2017 ACR: Response to CNSC Staff Comments and Recommendations**

Dear Mr. Rashapov,

Thank you for your letter [1] itemizing CNSC staff comments and recommendations pertaining to SRBT's Annual Compliance Report (ACR) for 2017.

As requested, SRBT submits the following response in order to provide additional information and clarification. CNSC staff comments are repeated below, followed by our response immediately thereafter.

***Comment 1: General Introduction***

*SRBT should make a statement on any operational challenges experienced at the facility.*

During the reporting period, we are pleased to note that the SRBT facility did not experience any significant operational challenges.

Future ACRs will include a description of any operational challenges, or will state that no such challenges occurred.

***Comment 2.1: Human Performance Management***

*SRBT should consider adding the deadline for achieving 100% SAT training for the seven SAT based activities.*

Although a deadline date for completion of the development of the remaining SAT-based training activities was not specified in the 2017 ACR, SRBT continued to work towards achieving this objective in the first half of 2018.

We are pleased to report that by the end of March 2018, the final two original SAT-based training activities had completed development and reached the implementation stage, thus achieving the end goal of full training implementation of the seven original activities.

***Comment 2.2: Human Performance Management***

*SRBT should provide clarification whether “production technicians” include the Rig Room and Assembly Room Technicians.*

The term “production technicians” encompasses workers in all departments, including those workers in both the Rig Room and Assembly Room areas.

***Comment 2.3: Human Performance Management***

*SRBT should consider including a statement on the status of SAT training to other positions as identified in SRBT’s Training Program Manual (e.g. Human Protection Coordinator(s) and Supervisors) in future revisions of the Annual Compliance Performance Report.*

It is important to note that the organizational positions listed on page 8 of the Training Program Manual were those positions identified as being within the scope of SAT-based training during the initial execution of the analysis process, when the Training Program was first being implemented in 2015.

This information has been retained in the program manual for context as the program evolves over time. Now that the program has reached a more mature stage, the tracking of training activities by position has shifted to the tracking of individual qualifications for those work activities that are trained in accordance with SAT processes.

For example, the Human Protection Coordinator and Health Physics Technician are qualified (or in the process of qualification) in all seven of the work activities originally analyzed and developed in line with the SAT programs; both of these individuals are members of the Health Physics Team. Other members of the Health Physics team have been qualified in only certain activities that are trained in accordance with SAT processes.

As well, individual production technicians are qualified in certain production tasks trained in accordance with SAT processes, but not necessarily all tasks, depending on production need; for example, a production technician could only be qualified to fill light sources, but not to handle tritium traps or operate the bulk splitting rig.

As such, qualifications are achieved, tracked and managed on an individual basis, rather than by organizational position. Given this, SRBT proposes to include the number of qualified workers for each individual activity trained in accordance with SAT processes in future ACRs.

For sake of completion, this information is included in the table below, current to the date of this letter.

SAT Work Activity	Fully Qualified Workers	Workers Progressing Toward Full Qualification
SAT-HP-01: Advanced Health Physics Instrumentation	1	2
SAT-HP-02: Liquid Effluent Management and Control	5	0
SAT-HP-03: Weekly Stack Monitoring	4	0
SAT-HP-04: Bioassay and Dosimetry	2	2
SAT-OP-01: Tritium Processing – Filling and Sealing Light Sources	5	0
SAT-OP-02: Bulk Splitter Operations	2	2
SAT-OP-03: Handling PUTTs	2	2

**Comment 3: Fitness for Service**

*SRBT should provide a statement on the effectiveness of any Aging Management Strategies in future revisions of the Annual Compliance and Performance Report.*

Although the SRBT Maintenance Program incorporates several program elements associated with nuclear power plants as best practice (such as critical spares, master equipment lists, etc.), aging management is not an element that is formally included as a strategy.

SRBT manages aging of key components and systems on a case-by-case basis. The facility does not include any active or passive safety components where unanalyzed age-related degradation or failure is likely to cause significant safety issues. The Maintenance Program continuously and effectively ensures safe processing operations through a combination of preventive and corrective maintenance strategies.

For completeness, a statement indicating the non-applicability of formalized Aging Management strategies will be included in future ACRs.

***Comment 4: Conventional Health and Safety***

*SRBT should consistently reference documents in the Annual Compliance Report.*

We acknowledge the issue with how certain programs are referenced in the ACR, and will endeavor to correct this issue in future ACRs. The terms 'Health and Safety Program', 'Conventional Health and Safety Program' and 'Industrial Health and Safety Program' are synonymous, and refer to the overall program of conventional health and safety implemented by SRBT. The term 'Health and Safety Manual' refers to a specific management system document.

***Comment 5: Conventional Health and Safety***

*SRBT should provide health and safety initiatives, performance which should include an evaluation whether the committee met its previous year objectives, goals and targets.*

The information noted as missing is summarized in other sections of the report, along with several other safety performance targets.

Details on whether the goals, objectives and targets set by the Health and Safety Committee were met in 2017 were included in Table 6, '2017 Performance Targets', on page 53 of the ACR. An evaluation on performance with respect to both lost time injuries and minor injuries is included. Details on the specific targets set by the committee for 2018 were included in Table 36, 'Safety Performance Objectives for 2018', on page 146 of the ACR.

Future ACRs will ensure that this information is also included in the specific section addressing the Safety and Control Area of Conventional Health and Safety, for ease of reference and review.

***Comment 6: Conventional Health and Safety***

*SRBT should provide a summary of any improvements to the Conventional Health and Safety Program.*

After experiencing two lost time injuries early on in 2017, a safety review was conducted with all departments in order to increase vigilance and reinforce expectations and desired behaviours with all staff. As well, job rotation initiatives were rolled out in order to help minimize the risk of ergonomic-related issues in all departments.

SRBT is now a subscriber to the MSDS Management Service offered by the Canadian Centre for Occupational Health and Safety (CCOHS), which allows for simpler and more effective management of the MSDS / SDS sheets on file. WHMIS training was revamped and incorporated into the annual all-staff training day in December.

The washing station in the Coating department was replaced with a newly designed unit to increase safety when handling washing solutions. New lockout equipment was purchased, as well as a height adjustable workbench to improve ergonomics during certain processes.

**Comment 7.1: Environmental Protection**

*If SRBT does not release any hazardous effluents, CNSC staff expect from SRBT to clearly indicate it in future submissions of its Annual Compliance Performance Report.*

Future ACRs will include information pertaining to hazardous effluents, or the lack thereof. For the reporting period in question, SRBT confirms that hazardous (i.e. non-radiological) substances are not released from the facility in any significant quantity.

**Comment 7.2: Environmental Protection**

*SRBT should provide an explanation regarding why there were no samples obtained for three of the four downspout monitoring campaigns in 2017 for sampling location DS-1. In addition, SRBT should explain the elevated result for DS-6 collected on August 22, 2017.*

The downspout collection point for DS-1, on the roof of the southeast corner of the building in which the SRBT facility is housed, is of a higher elevation than the other five points. As such, water does not typically flow down through DS-1 during most periods of rain as it does not reach the drain on the roof.

During periods of torrential rain, water collection on the roof can be of a high enough rate that this downspout will receive and divert water, which can then be collected. On August 22, 2017, several inches of rain fell in a short time span, allowing a sample to be taken. This was the only instance in 2017 where these conditions were met and a sample was acquired.

A review of previously submitted annual compliance reports shows that since 2014, out of seventeen instances where downspout water was collected and analyzed, DS-1 was only able to be sampled three times (May 9, 2014, August 12, 2014 and August 22, 2017).

The elevated result for DS-6 measured on August 22 is likely a result of a combination of factors, including:

- DS-6 is the downspout that is nearest to the active ventilation stacks, and as such, would divert water that is reasonably expected to contain a relatively higher tritium concentration than other downspouts further away.
- A high rate of rain in a short period of time likely resulted in a higher level of submerged / inundated surface area on the roof top near DS-6, liberating surface contamination that may not have otherwise been removed by normal rain fall events.
- A high rate of rain fall occurring just before the cessation of tritium processing may have resulted in the immediate entrainment and deposition of tritium from the stacks that was being released at the time.

Again, typically elevated tritium concentrations in the water released by DS-6 is a known phenomenon. A review of previously submitted annual compliance reports shows historically higher tritium concentrations on occasion due to these factors (e.g. March 7, 2012, May 9, 2014, November 24, 2014, others).

**Comment 7.3: Environmental Protection**

*SRBT should clarify in future reports what are the acceptable boundaries for uncertainties associated with groundwater monitoring. The respective references (if any) should be cited in the Annual Compliance Performance Report.*

CSA standard N288.7-15, *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills* requires that an annual monitoring report includes "...a statement of uncertainties inherent in the monitoring results and any dose estimates derived from them (where applicable)".

The statements made in section 4.3.3.4 of the ACR are intended to fulfill this requirement by itemizing the points in the monitoring process where there may be uncertainties inherent in the data.

More importantly, groundwater monitoring program data does not factor in to the determination of effective dose to members of the public, as the water being sampled is not potable, and is not consumed nor used in any dose-significant way. As such, there is no inherent uncertainty in the public dose estimates derived from data gathered through our groundwater monitoring program. Note that the data from residential well sampling falls within the scope of the Environmental Monitoring Program, and forms the contributing factor to the calculation of public dose each year.

Measurement uncertainty is evaluated through repeat measurements of prepared subsamples, in accordance with internal liquid scintillation counting procedures. Typically, for most wells monitored as part of the program, the measurement uncertainty is less than +/-10% of the stated measurement; wells with lower tritium concentrations can exhibit slightly higher measurement uncertainties.

The text in this section of the ACR is purely intended to provide a measure of confidence that, even when accounting for any inherent sampling and measurement uncertainties which could be present in the final groundwater monitoring data, the results are 'fit for purpose', in that they adequately contribute to the conclusion of acceptably low levels of risk to the public from this resource.

**Comment 7.4: Environmental Protection**

*SRBT should provide clear justification for the decision to modify the existing procedure to be consistent with the field practice. Specifically, SRBT should justify the decision to revise the procedure regarding the labelling of samples as this is contrary to the recommendation by CNSC staff resulting from the 2016 inspection. Also, SRBT should provide clarification regarding the finding for procedure EMP-010 and the decision to run water for 30 seconds instead of one minute.*

The report issued from the referenced inspection in 2016 [2] included the following recommendation:

**SRBT-2016-01-R01:** *SRBT procedures should be updated, or enforced, such that the procedure is consistent with in-field practices.*

This recommendation was made based upon the observation of a third-party contractor swapping out a passive air sampler during environmental monitoring field work, and labelling the obtained sample

vial after the sample was swapped. This was contrary to the in-force revision of procedure EMP-002, which, at the time, mandated that caps are labelled prior to beginning the sampling campaign.

In order to address the recommendation, SRBT revised procedure EMP-002 to remove the prescriptive instruction on cap labelling, and to allow either the labelling of caps before sampling, or at the point in time when the sample is acquired, as the point in the process where the cap is labelled is inconsequential to the accuracy or precision of the sampling activity.

CNSC staff were informed of this corrective measure in our reply to the inspection report [3], and subsequently acknowledged that SRBT had taken “positive steps to address the three recommendations...” [4].

The 2017 ACR included information on an internal audit in the area of Environmental Monitoring Program, which found that other sample procedures contained similarly prescriptive requirements pertaining to labelling – specifically, procedures defining how precipitation, river water, milk, and residential well water samples are labelled included the requirement to apply labelling prior to embarking on a sampling campaign.

As a result of the internal audit, OFI-279 was raised, and the corresponding procedures were subsequently revised to remove the prescriptive instructions on when samples are labelled, and to ensure field practices and procedures were fully aligned. In essence, identical actions were taken to address OFI-279 as were taken to address SRBT-2016-01-R01.

Given these details, we trust you will agree that the decision to revise these procedures to be consistent with field practices was not contrary to the recommendation made resulting from the 2016 inspection; in fact, these actions were fully aligned with the recommendation put forth.

It is acknowledged that at the time of addressing the recommendation, SRBT revised EMP-002 but failed to consider assessing the extent-of-condition with respect to the rest of the field sampling procedures; however, the internal auditing process helped to ensure that these improvements were incorporated in our procedure set.

The specific finding associated with EMP-010, *Residential Drinking Water – Field Sampling* was that although the procedure stated that the water was run for at least one minute, the actual field process was only to run the water for around half of that time.

When SRBT first implemented EMP-010 as part of the N288.4 compliance improvement initiative in 2016, the procedure was written in consultation with representatives of the independent third party who routinely perform sampling on behalf of SRBT. At that time, it was noted that technicians typically run the tap water for around a minute prior to obtaining the sample. As a result, this was incorporated into the first revision of the procedure as a prescriptive statement.

Upon auditing the execution of the procedure the following year, it was evident that the original estimate of time that the tap was run was not accurate, and in fact it amounted to ‘approximately thirty seconds’. As a result, the procedure was revised to better reflect field practices by noting that the water is to be run for ‘around thirty seconds’.

The residential sources of water sampled by SRBT are used frequently enough by the respective homeowners that it is highly unlikely that there will be any significant impact on the representative nature of the sample obtained, no matter the amount of time the tap flows before sample acquisition.

***Comment 8: Environmental Protection***

*SRBT should provide information on the conceptual site model in future revisions of its Annual Compliance Performance Report.*

The Groundwater Monitoring Program contributes data that supports the determination of risk, in line with the conceptual site model outlined and described in the Groundwater Protection Program (GPP), and by extension, the groundwater monitoring studies performed on site between 2006-2008.

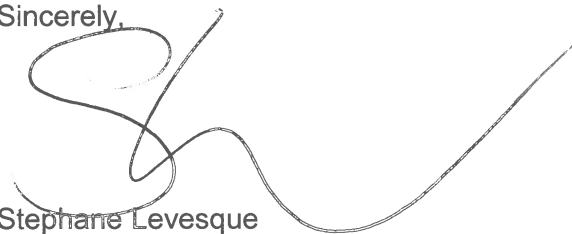
The requirement in the N288.7-15 standard with respect to reporting states that there shall be "...discussion of monitoring results in terms of program objectives, and the conceptual site model".

The intent of the information provided in section 4.3.3.7 is to document this discussion. Future ACRs will touch on the site model in a high-level fashion in order to provide additional context for understanding the reported data.

We hope that the additional information provided here sufficiently resolves the technical issues which have been identified during CNSC Staff's review of the 2017 ACR.

As always, should you have any further questions, comments or require additional information, please do not hesitate to contact me directly.

Sincerely,

A handwritten signature in black ink, appearing to read 'SK', with a long horizontal flourish extending to the right.

Stephane Levesque  
President  
SRB Technologies (Canada) Inc.

cc: R. Fitzpatrick, SRBT  
K. Levesque, SRBT  
J. MacDonald, SRBT



**References:**

- [1] Letter from R. Rashapov (CNSC) to S. Levesque (SRBT), *CNSC Staff Review of SRB Technologies (Canada) Inc.'s 2017 Annual Compliance Report*, dated June 20, 2018 (e-Doc 5561762).
- [2] Letter and Inspection Report from R. Buhr (CNSC) to S. Levesque (SRBT), *SRB Technologies (Canada) Inc. Inspection Report No. SRBT-2016-01 October 4, 2016 – October 5, 2016*, dated December 20, 2016 (e-Doc 5138759 and 5138669).
- [3] Letter from S. Levesque (SRBT) to R. Buhr (CNSC), *SRBT Response – Inspection Report SRBT-2016-01*, dated January 26, 2017 (e-Doc 5176211).
- [4] Letter from R. Buhr (CNSC) to S. Levesque (SRBT), *CNSC response to SRB Technologies (Canada) Inc. Corrective Actions related to Inspection Report SRBT-2016-01*, dated February 7, 2017 (e-Doc 5184531).