Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

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Supplementary Information

Presentation from Anna Tilman

In the Matter of the

SRB Technologies (Canada) Inc.

Application for the renewal of the licence for SRBT Facility

Commission Public Hearing

April 27, 2022

Renseignements supplémentaires

Présentation de Anna Tilman

À l'égard de

SRB Technologies (Canada) Inc.

Demande de renouvellement de permis pour l'installation de SRBT

Audience publique de la Commission

27 avril 2022

Canada

Presentation to the Canadian Nuclear Safety Commission (CNSC)

SRB Technologies (Canada)'s

Application for Renewal of its Class 1B Operating licence for a 15-year period.

April 27, 2022

Anna Tilman

SRBT's Current Operations

Operates a Class IB Tritium Processing Facility, comprising of a tritium processing facility for manufacturing radiation devices.

Its current licence allows it to:

- Possess, transfer, use, process, manage, store and dispose of nuclear substances required to manufacture radiation devices.
- Possess tritium up to 6000 Terabecquerels (TBq) in any form.
- Possess and use prescribed information required for, associated with, or arises from the manufacturing of radiation devices.

SRBT's Licence Request

- Current Licence expires June 2022.
- SRBT has applied for a 15-year licence renewal (July, 2022 to June 30, 2037).
- Company's rationale:

"*The stability offered by a fifteen-year licence would also further ensure SRBT's ability to* ***secure long term contracts with customers and suppliers****. Based on its performance, its continued commitment to operating the facility safely, and improving our operations continuously, SRBT believes that a licence term of fifteen years would be reasonable, beneficial, appropriate and justified*."

Issues re 15-year Licence Request

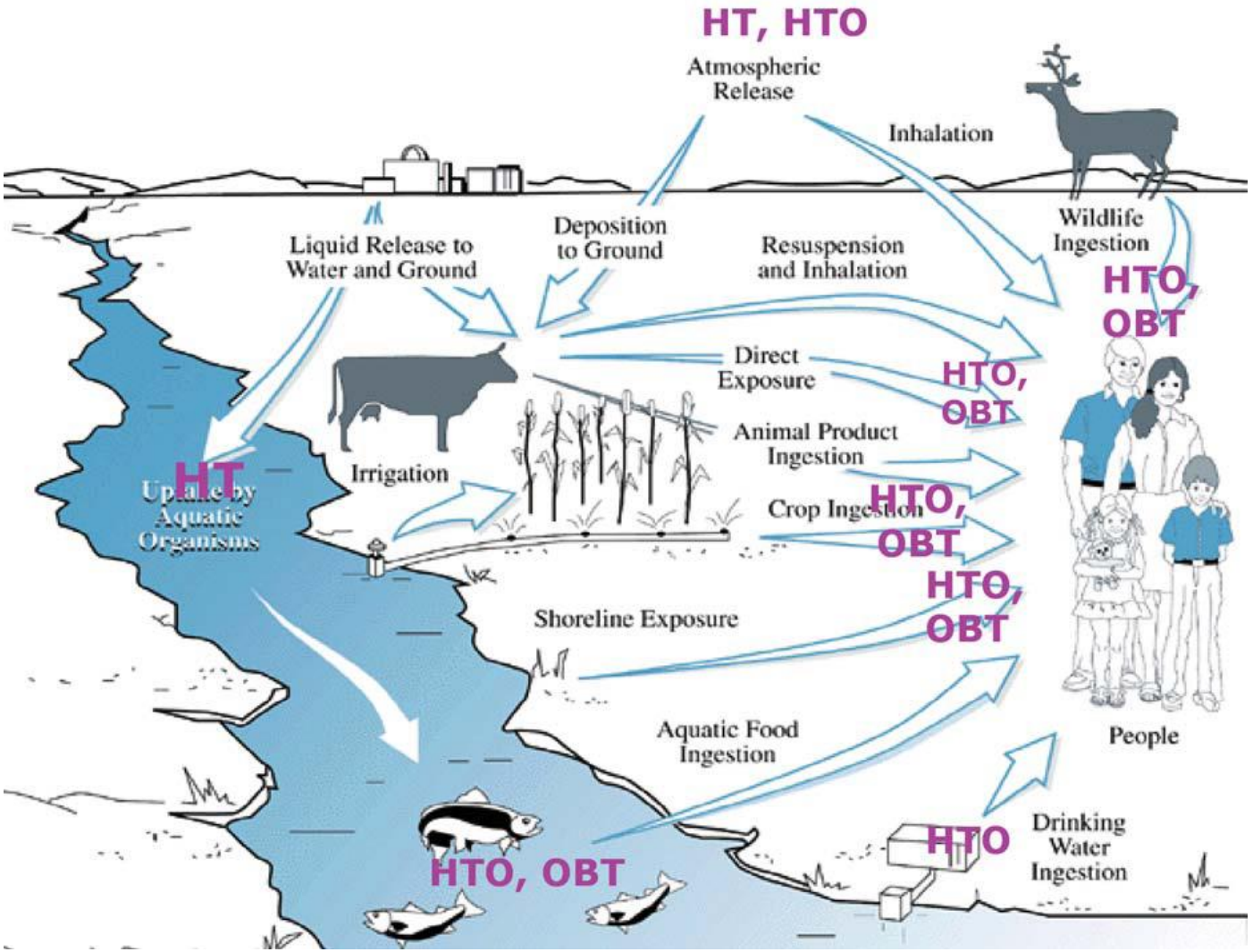
- **Emissions:** What attempts will be made by SRBT to reduce tritium emissions to water (wells, groundwater, sewers, and air?
- **Waste:** How much more waste will be “disposed of” and how?
- **Demand:** Can it be assumed that the demand for SRBT’s products will continue unabated over the requested licence period?

Tritium – The Contaminant

Gaseous and aqueous forms of tritium (HT and HTO):

- Radioactive and pervasive.
- HT permeates most materials
- HTO rapidly mixes everywhere.
- Easily absorbed
- Incorporated into DNA

Tritium – Environmental Pathways



Tritium – Drinking Water Standards

Relative Biological Effectiveness (RBE) of Tritium

- Drinking water exposure based on an RBE of 1.
- Other forms of radiation have an RBE of 20.
- Canada Guideline and Ontario Drinking Water Quality Standard for tritium is 7,000 Bq/L.
  - Allows for 350 excess fatal cancers per million people.

SRBT's Waste Management Program Disposal and Clearance

SRBT's Waste Management Program:

"Ensure that the waste is minimized, appropriately classified and segregated, characterized for hazards, stored and processed safely, and cleared or managed in accordance with regulatory requirements."

- Conditional clearance levels: "Cleared" waste is considered no longer radioactive and can be "free-released" – dispersed to landfills and recycling streams.
- Waste materials exceeding these levels are disposed of through licensed waste providers .
- End-users offered a dismantling service for expired or disused devices.

Waste
Proposed Improvements

Waste - Proposed Improvements?

SRBT's Revised Waste Management Program:

- Comply with the CNSC Regulatory Document and CSA Group standard (by December 31, 2021); and
- Incorporate these documents and CSA N292.8-21 *Characterization of radioactive waste and irradiated fuel* by December 31, 2022.

Concluding that SRBT's Waste Management Program meets regulatory requirements is an "a priori" conclusion by CNSC without merit.

Reportable Events – Public Accountability (July 2015-December 2021)

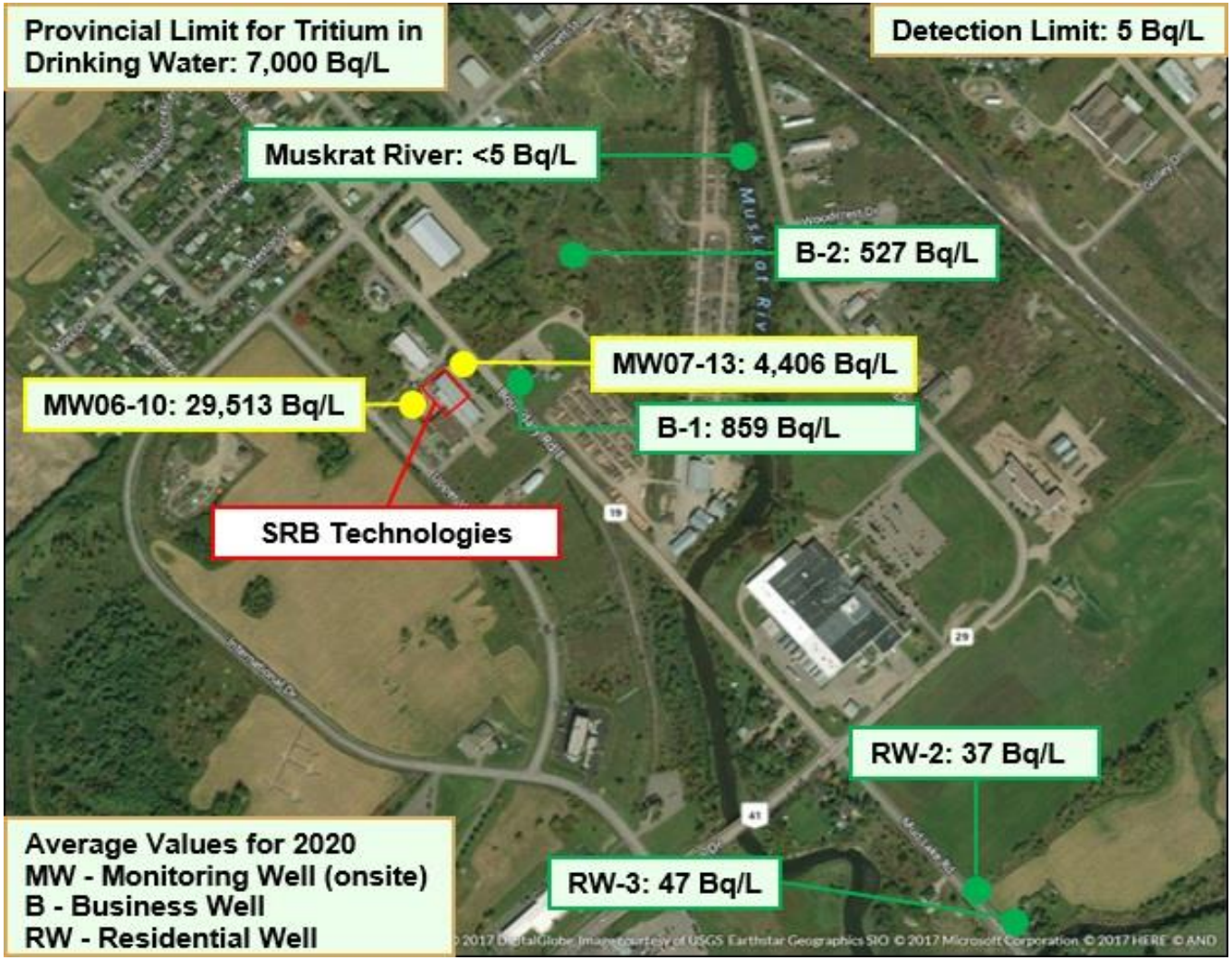
10 Events reported during this period include:

- Trailer containing expired signs stolen.
- Damage in transport.
- Lost or misplaced signs.
- Malfunctions of equipment.

The CNSC (and SRBT) state that “There was no hazard to workers, the facility or the environment.” regarding these events.

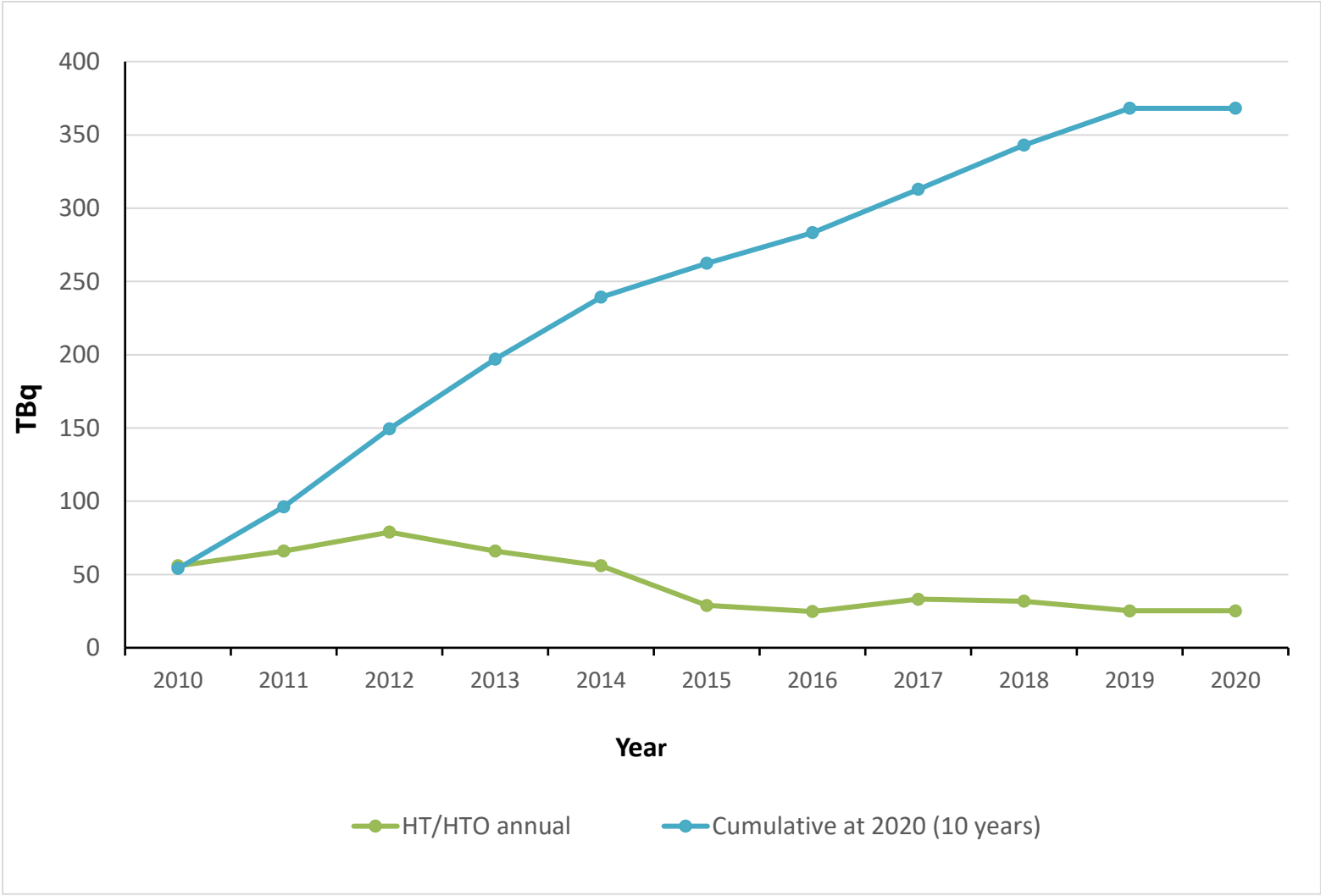
But what are the consequences?

Tritium Concentrations
Groundwater: Monitoring & Contamination[1]



[1] CNSC's Environmental Protection Report

Annual and Cumulative Emissions of Tritium (HT and HTO) - TeraBequerels (TBq)



- Note: Tritium emissions to air were 4315, 1224 and 285 TBq for the years 2004-6

Decommissioning Activities (2019-2020)

Facility changes: Extension, dismantling obsolete equipment

- 120 kg of metal recycled,
- 58 kg non-recyclable material was sent to landfill,
- 430 kg of low-level waste was generated and stored for disposal.
- 9.523 kg of depleted uranium (DU) in metallic form is being stored.[1] (Unclear what happened to the DU waste.)
- All contaminated components exceeding clearance levels disposed of as low-level radioactive waste.

SRBT's Decommissioning Plans

SRBT updated Preliminary Decommissioning Plan (PDP) and cost estimate (November 2019). The Financial Guarantee (FG) is $747,760.51.

CNSC's CMD, (p. 57):

> "*This review was conducted prior to the submission of SRBT's licence renewal application and is outside the scope of this CMD. Licence renewals do not inherently trigger an update to a PDP.*"

What is the current status of decommissioning SRBT?

When will these plans be updated and made public?

When will decommissioning commence?

Will the FG be even adequate for the decommissioning work?

Summary Comments

Tritium Release Limits (air, water, sewers) & the drinking water standard:

- These limits are extremely lax, outdated, and ineffective, and have resulted in exorbitant released of tritium.

Waste:

- The use of clearance levels resulted in the disposal of “cleared” radioactive waste in landfills not designed for radioactive-contaminated waste. Thus there is no accountability for all the radioactive waste resulting from SRBT’s operations.

Recommendations to the CNSC

SRBT's licence be renewed for no more than 5 years.

SRBT must develop a detailed decommissioning plan subject to public review during this period.

Waste management and clearance levels need further examination and public review.

It is critical that the CNSC review its tritium release limits.