

**Canadian Nuclear
Safety Commission**

**Commission canadienne de
sûreté nucléaire**

Public hearing

Audience publique

May 19th, 2010

Le 19 mai 2010

Public Hearing Room
14th floor
280 Slater Street
Ottawa, Ontario

Salle d'audiences publiques
14^e étage
280, rue Slater
Ottawa (Ontario)

Commission Members present

Commissaires présents

Mr. Michael Binder
Dr. Moyra McDill
Dr. Christopher Barnes
Mr. Alan Graham
Mr. André Harvey
Mr. Dan Tolgyesi
Dr. Ronald Barriault

M. Michael Binder
Mme Moyra McDill
M. Christopher Barnes
M. Alan Graham
M. André Harvey
M. Dan Tolgyesi
M. Ronald Barriault

Secretary:

Mr. Marc Leblanc

Secrétaire

M. Marc Leblanc

Senior Counsel :

Ms. Lisa Thiele

Conseiller principal:

Mme Lisa Thiele

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Ottawa, Ontario

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--- Upon commencing at 9:05 a.m. /

L'audience débute à 9h05

Opening Remarks

M. LEBLANC: Bonjour, mesdames et messieurs. Bienvenue à l'audience publique de la Commission canadienne de sûreté nucléaire.

Mon nom est Marc Leblanc. Je suis le secrétaire de la Commission et j'aimerais aborder certains aspects touchant le déroulement de cette audience.

The Canadian Nuclear Safety Commission is about to continue the public hearing regarding the application by SRB Technologies for the renewal of their Class 1B licence.

This morning after hearing from SRBT and CNSC staff, the focus for today will be on the submissions from the intervenors. Please note that there are 60 interventions, including eight oral presentations this morning.

During today's business, we have simultaneous translation.

Des appareils de traduction sont

1 disponibles à la réception. La version française est au
2 poste 8 and the English version is on channel 7.

3 We would ask you to keep the pace of your
4 speech relatively slow so that the translators have a
5 chance of keeping up.

6 I would also like to note that this
7 proceeding is being video-webcasted live and that the
8 webcast is also archived on our website for a three-month
9 period after the close of the hearing.

10 The transcripts of this proceeding will be
11 available on the website of the Commission next week.

12 To make these transcripts as meaningful as
13 possible, we would ask everyone to identify themselves
14 before speaking.

15 And also as a courtesy to others in the
16 room, please silence your cell phones and other electronic
17 devices.

18 Monsieur Binder, président et premier
19 dirigeant de la CCSN, va présider l'audience publique
20 d'aujourd'hui.

21 Mr. President?

22 **LE PRÉSIDENT:** Merci, Marc, and good
23 morning and welcome to the public hearing of the Canadian
24 Nuclear Safety Commission.

25 Mon nom est Michael Binder. Je suis le

1 président de la Commission canadienne de sûreté nucléaire
2 et je vous souhaite la bienvenue. Welcome to all of you
3 who are joining us through our webcast.

4 I'd like to begin by introducing the
5 Members of the Commission that are with us here today: on
6 my right, Dr. Moyra McDill and Dr. Christopher Barnes; on
7 my left, Mr. Alan Graham, monsieur André Harvey, monsieur
8 Dan Tolgyesi and Dr. Ronald Barriault.

9 You have now heard from Marc and we have
10 also with us Ms. Lisa Thiele, the senior counsel to the
11 Commission.

12 **M. LEBLANC:** Before adopting the agenda,
13 please note that nine supplementary Commission Member
14 Documents, which we refer to as CMDs, were added to the
15 agenda after publication on April 21st, as outlined in the
16 revised agenda.

17 We have on the agenda a public hearing on
18 the application by SRB Technologies. There is also a
19 Commission meeting scheduled today at 3:00 p.m.

20 On Friday, we will be in Pickering, Ontario
21 for the Day 2 hearing on Ontario Power Generation's
22 application for the renewal of the Pickering Nuclear
23 Generating Station A.

24 **THE CHAIRMAN:** Okay. I would like to call
25 for the adoption of the agenda by the Commission Members

1 as outlined in Commission Member Document 10-H10.A.

2
3 **10-H10 / 10-H10.A**

4 **Adoption of Agenda**

5
6 **THE CHAIRMAN:** Do I have concurrence?

7 For the record, the agenda is adopted.

8 Let's now begin with the hearing, listening
9 to the application by SRB Technologies.

10 Marc?

11
12 **SRB Technologies (Canada)**

13 **Inc.:**

14 **Application for the renewal of the**

15 **Class 1B Licence to operate its**

16 **Nuclear Substance Processing**

17 **Facility in Pembroke, Ontario**

18
19 **M. LEBLANC:** As indicated earlier, this is
20 Day 2 of the public hearing on SRB Technologies'
21 application. The first day of public hearing on this
22 application was held on February 17th of this year.

23 The Notice of Public Hearing 2010-H-02 was
24 published on December 16th, 2009. The public was invited
25 to participate either by oral presentation or written

1 submission. April 19th was the deadline set for filing by
2 intervenors.

3 The Commission received 63 requests for
4 intervention. Three of these requests were received
5 significantly after the deadline and were not accepted on
6 the agenda.

7 The Commission strongly urges all parties
8 to file their submissions within the deadlines set in the
9 public notice of hearings in compliance with the CNSC
10 Rules of Procedure.

11 After hearing from SRBT and CNSC, the focus
12 will be on the submissions from intervenors. The oral
13 interventions are scheduled based on the chronological
14 order of receipt.

15 Presentations were made on Day 1 by the
16 Applicant SRB Technologies under CMDs 10-H5.1 and 10-H5.1A
17 and by Commission staff under 10-H5, H5.A and 10-H5.B.

18 May 12 was the deadline for filing of
19 supplementary information. I note that supplementary
20 information has been filed by CNSC staff, SRBT, as well as
21 intervenors.

22 **THE CHAIRMAN:** Okay. So let's start the
23 hearing by turning the floor to SRB Technologies. Two
24 supplementary submissions were filed as outlined in CMD
25 10-H5.1B and 10-H5.1C.

1 I understand that SRB would like to make short opening
2 remarks.

3 Mr. Stephane Levesque, the floor is yours.

4

5 **10-H5.1.B / 10-H5.1.C**

6 Oral presentation by
7 SRB Technologies(Canada)Inc.

8

9 **MR. LEVESQUE:** Thank you, Chairman and
10 Members of the Commission.

11 My name is Stephane Levesque. I'm the
12 President for SRB Technologies.

13 As today is reserved for the public, I will
14 not be making a presentation but providing a short
15 overview of the information that we have provided you in
16 support of Hearing Day Two.

17 We have supplied the Commission with two
18 supplementary submissions; the first submission provides
19 the Commission additional information that was requested
20 during Hearing Day One on noise exposure at our facility
21 and on our compliance the applicable regulations; on our
22 Occupational Health and Safety Committee meetings to
23 confirm that no issues are currently outstanding; on the
24 disposal of expired products and the process involved in
25 that disposal, and our compliance again with the

1 regulations; on our organization which demonstrates that
2 we are qualified to carry on the activity for which we
3 have applied; on groundwater with our confirmation that we
4 agree with CNSC staff's assessment of transient
5 groundwater; on our emission reduction targets for the
6 upcoming five years should a licence with a five-year term
7 be issued.

8 The second submission provides the
9 Commission additional information on our interaction with
10 the public that has taken place since Hearing Day One.

11 A total of 39 written submissions expressed
12 concerns or opposition to the renewal of SRB's licence.

13 Before receipt of these written submissions
14 we had only recorded concerns from five different
15 individuals since the current licence was issued
16 approximately 22 months ago, so we were actually surprised
17 by the number of written submissions that have been filed
18 with the Commission.

19 We now understand, however, that based on
20 various conversations that we had with the public that Ms.
21 Kelly O'Grady of the First Six Years recently performed a
22 door-to-door campaign to residences in the vicinity of
23 SRB.

24 A number of local residences shared with us
25 information that was supplied and discussed during this

1 door-to-door campaign; notably that residents were told
2 not to contact SRB directly and that SRB could not be
3 trusted.

4 I'm very disappointed with what I heard.

5 Allegations that the public's health is at
6 risk and their existing health conditions, as a result of
7 our operations, are unfounded. As a result, we believe
8 that some of the 39 written submissions may have arisen
9 from these allegations but nonetheless we take these
10 concerns very seriously.

11 Following receipt of the submissions, SRB
12 began a thorough review of all of them and began to
13 formulate individual and personalized letters with
14 additional information in an attempt to address the
15 concerns of the public.

16 I have included all those in my written
17 submission so you can all see it in the appendices.

18 In addition to that, accompanied by our
19 General Manager, Ross Fitzpatrick, I personally met some
20 of the individuals that had written submissions following
21 receipt of them in order to discuss with them their
22 concerns and to provide them additional information.

23 I got a lot of positive feedback as they
24 weren't given all the information previously.

25 In addition to the letters we provided the

1 public an information brochure which you can see in
2 Appendix 43 of our submission for the public. This
3 brochure explains the impact posed by our operations and
4 the environment and the health and safety of the public.

5 We also provided the public further
6 opportunity to comment by enclosing a postage-paid
7 envelope. We urged them to visit our website and to
8 contact our company should they have any more questions or
9 if they'd like a tour of the facility.

10 As part of our enhanced public information
11 program, we'll ensure that regular public input is
12 facilitated by continuing to allow a flow of information
13 between parties. We're committed to this.

14 SRB and its staff has demonstrated its
15 commitment and integrity by the work described in the
16 submissions. SRB and its staff has also demonstrated that
17 it will continue to make these improvements in the future
18 by the various initiatives, goals and targets described in
19 our submissions and based on future and -- concerns raised
20 by CNSC staff, members of the public, and even our own
21 employees.

22 SRB has demonstrated it has met all the
23 conditions of the existing licence and reporting
24 requirements.

25 We therefore believe that under Section

1 24.4(a) of the *Nuclear Safety and Control Act* that SRB is
2 qualified to carry on the activity for which it has
3 applied and still, under Section 24.4(b) of the *Nuclear*
4 *Safety Control Act*, SRB will in carrying on that activity
5 make adequate provisions for the protection of the
6 environment, the health and safety of persons, and the
7 maintenance of national security.

8 For these reasons, we respectfully request
9 that the Commission renew our licence for a period of five
10 years, as was recommended by CNSC staff.

11 That concludes my statement.

12 I'm accompanied here today by Ross
13 Fitzpatrick, our General Manager, who will help me answer
14 questions after.

15 Thank you.

16 **THE CHAIRMAN:** Thank you.

17 I'd like to move now to a presentation from
18 CNSC staff as outlined in CMD 10-H5.C and I understand
19 that Mr. Peter Elder will make the presentation.

20 Peter, the floor is yours.

21
22 **10-H5.C**

23 **Oral Presentation by**

24 **CNSC Staff**

25

1 **MR. ELDER:** Thank you.

2 Good morning, Mr. President and Members of
3 the Commission. My name is Peter Elder, a Director
4 General of the Directorate of Nuclear Cycle and Facilities
5 Regulation.

6 With me at the front table today are Mr.
7 B.R. Ravishankar, Director of the Processing and Research
8 Facilities Division, and Ms. Ann Erdman, the Project
9 Officer for this facility.

10 Behind us are other CNSC staff members from
11 our Facility Assessment and Compliance Team for SRBT.

12 SRB Technologies Inc., also known as SRBT,
13 has applied to renew their operating licence to process
14 and use tritium for the purpose of manufacturing gaseous
15 tritium light sources and to manufacture radiation devices
16 incorporating such sources.

17 Since there has been a considerable gap
18 from the Day One hearing in February, I will provide a
19 quick recap of the CNSC staff review of SRBT's application
20 and performance before Mr. Ravishankar and Ms. Erdman
21 provide some details on the additional information
22 requested by the Commission at Day One.

23 SRBT's current licence was issued in 2008
24 for a period of two years. This followed the period
25 between 2006 and 2008, during which the Commission had not

1 allowed SRBT to produce any sources due to serious
2 problems with environmental protection.

3 In its decision in 2008, the Commission
4 recognized that SRBT had made a number of improvements to
5 the facility and its programs and the Commission concluded
6 that SRBT had made major improvements to both its
7 understanding of responsibilities under the *Nuclear Safety*
8 *and Control Act* and associated regulations and its
9 qualifications to perform, especially in the area of
10 environmental protection.

11 At that time, the Commission accepted the
12 CNSC staff recommendation to impose much stricter release
13 limits on SRBT.

14 The CNSC staff review of SRBT's performance
15 since 2008 is discussed in detail in our Day One CMD 10-
16 H5. CNSC staff conducted a systematic review of all
17 SRBT's programs against the standard safety and control
18 areas and these are shown on the graph -- or half of them
19 here on this page.

20 In all areas, SRBT's performance was
21 satisfactory, with either a stable or improving trend and
22 all programs were judged to be acceptable.

23 Major improvements were observed in the
24 areas of management system and operating performance which
25 should lead to continued improvements in the safety of the

1 facility.

2 Improvements in operating practices have
3 led to a significant reduction in tritium emission
4 compared with previous operation.

5 While SRBT's performance environmental
6 protection remained stable during the current licence
7 period, it is worth noting that the major improvements in
8 this area were put in place prior to SRBT's return to
9 service in 2008. SRBT has fully complied with the
10 stricter environmental release limits imposed in 2008.

11 CNSC staff will be continuing to closely
12 monitor SRBT's environmental protection performance.

13 CNSC staff though conclude that the current
14 releases do not pose a risk to human health in that the
15 doses to the public are well below regulatory limits and
16 the current releases are protective of groundwater and the
17 environment.

18 At Day One, CNSC staff recommended that the
19 Commission approve the issuance of a nuclear substance
20 processing facility operating licence for a period of five
21 years.

22 None of the additional information
23 presented today or in CNSC staff's supplemental CMD
24 changes that recommendation.

25 However, the Commission did request

1 additional information during the Day One hearing on a
2 number of issues, and including more information on
3 tritium and groundwater.

4 The rest of this presentation will focus on
5 this topic, along with additional information on waste
6 management, including discharges to the sewer, the use of
7 a reclamation unit, environmental monitoring and the
8 qualification of SRB staff.

9 Mr. B.R. Ravishankar will now continue the
10 next part of the presentation.

11 **MR. RAVISHANKAR:** Good morning, Mr.
12 President and Members of the Commission.

13 Over the next few slides I will be covering
14 the topics of tritium health effects, tritium in drinking
15 water, tritium behaviour in groundwater and some of the
16 monitoring well reserves.

17 CNSC staff has recently completed a
18 comprehensive review of epidemiological studies involving
19 radiation workers, their offspring and members of the
20 public living near nuclear facilities. This includes
21 Canadian studies assessing tritium exposures.

22 To date there is no evidence of a raised
23 risk of any disease associated with tritium at past and
24 current exposures.

25 Adverse health effects due to tritium

1 exposure at past and current exposure levels in Canada are
2 highly unlikely. This report is currently available to
3 the public on CNSC's website.

4 Based upon the recommendations of the
5 International Commission on Radiological Protection (ICRP)
6 the Health Canada Guideline for tritium in drinking water
7 is 7,000 Becquerels per litre. This has been adopted as
8 the standard in some provinces, such as Ontario.

9 In June of last year the Ontario Drinking
10 Water Advisory Council proposed to the Ontario Ministry of
11 Environment to lower the enforceable limit of tritium in
12 drinking water from 7,000 Becquerels per litre to 20
13 Becquerels per litre. The Ontario MOE has yet to change
14 the limit.

15 On the basis of principles used by Health
16 Canada for setting Canadian drinking water quality
17 guidelines for non-threshold chemical carcinogens, the
18 Ontario Drinking Water Advisory Council recommended a
19 derived risk level for tritium in drinking water
20 representing an essentially negligible risk of cancer,
21 that is one in one million.

22 In 2009 the cancer mortality rate in the
23 general Canadian population was 150 in 100,000 for women
24 and 200 in 100,000 for men.

25 For comparison, in 2009 the current

1 mortality rates indicate that 24 percent of women and 29
2 percent of men are approximately one out of every four
3 Canadians will have died of cancer.

4 The lifetime cancer risk associated with
5 daily consumption of water at the Canadian Drinking Water
6 Quality Guideline level for tritium of 7,000 Becquerels
7 per litre would be 35 in 100,000.

8 Canada's current regulatory framework has
9 effectively controlled tritium exposures. Tritium
10 concentrations in public drinking water supplies in the
11 vicinity of nuclear facilities, including Pembroke, are
12 less than 18 Becquerels per litre, representing a lifetime
13 risk of cancer of about one in one million.

14 In Pembroke, the Ottawa River is used as a
15 source of municipal water supply. The tritium levels in
16 the Ottawa River is routinely monitored at the Drinking
17 Water Supply Plant in Pembroke. The tritium
18 concentrations at this location is typically around 6 to 8
19 Becquerels per litre. Further downstream, near Ottawa,
20 the tritium levels in the Ottawa River are 5 Becquerels
21 per litre or less.

22 A drinking water concentration of 7,000
23 Becquerels per litre of tritium represents less than 10
24 percent of the public dose limit of 1 Millisievert per
25 year. Adverse health effects that these levels are highly

1 unlikely.

2 Effective application of ALARA principle
3 has effectively controlled tritium exposures within
4 Canada's current regulatory framework.

5 During Day One the Commission wanted to
6 know about the predicted behaviour of tritium in
7 groundwater near SRBT in the coming years. Therefore,
8 CNSC staff completed a predictive modeling exercise to
9 explain variations in tritium levels in the groundwater
10 over time.

11 It is known that when tritium is released
12 to air some tritium could reach the soil through dry and
13 wet deposition.

14 This tritium ends up in soil-poor waters
15 where the rainwater drives the tritium in the soil-poor
16 water further down to the groundwater table.

17 Therefore, as time passes the tritium in
18 soil slowly moves vertically and reaches the groundwater
19 table.

20 CNSC staff has used the past monitoring
21 data from groundwater monitoring wells to develop a
22 predictive model on how tritium levels change over time
23 and how it is likely to change over the next few years.

24 The CNSC model explains the tritium
25 variations in all monitoring wells fairly well.

1 The model shows that for some wells the
2 tritium level is likely to increase in the short term
3 before they start to decrease. This is because there are
4 higher concentrations of tritium in the soil-poor water in
5 those locations which has not yet reached the groundwater.

6 The model calculates the tritium
7 concentration changes in any given groundwater monitoring
8 well. The model that CNSC staff used predicts that the
9 tritium concentration at the well near the base of the
10 stack is likely to increase for a while but in a few
11 months will start to come down and should reach a steady
12 state of about 31,000 Becquerels per litre.

13 This figure presents the measured and
14 predicted tritium concentrations at the monitoring well
15 near the base of the stack.

16 Please note that this figure is an update
17 to the figure found in CMD 10-H5.C and includes additional
18 well data submitted by SRBT in April of this year.

19 The groundwater tritium concentration
20 sample in April is now 23,000 Becquerels per litre.

21 Please note that the model has not taken
22 into account the current and future operational
23 efficiencies and preventive measures at the facility that
24 could result in lower tritium levels in the future.
25 Therefore, the 31,000 Becquerels per litre is likely to be

1 further reduced over time.

2 Hydrogeological information available so
3 far indicates that the groundwater flow at SRBT is moving
4 towards the Muskrat River and not towards the residential
5 wells.

6 CNSC staff's most conservative estimate is
7 that by the time it reaches Muskrat River the tritium
8 concentration started at SRBT will be at least 80 percent
9 lower due to decay and dispersion.

10 To summarize, the current levels of tritium
11 observed in the groundwater monitoring wells are from the
12 past practices at SRBT. SRBT has made considerable
13 improvements to their operations in order to reduce
14 tritium emissions into the air and groundwater.

15 Therefore, we should observe the tritium
16 concentrations in the groundwater monitoring wells go down
17 further over the long-term.

18 Over the next few years, along with the
19 reductions in tritium releases from the facility the
20 influence of historical tritium releases to groundwater
21 becomes less dominant.

22 CNSC staff recommends that the groundwater
23 monitoring wells continue to be monitored in order to
24 validate the long-term trends of tritium in the
25 groundwater. A five-year licence will provide CNSC staff

1 enough time and data to assess the longer term trend of
2 tritium reductions in groundwater.

3 Turning to the residential wells -- I would
4 like to begin with some context on international limits as
5 requested by the Commission on Day One.

6 The table on this slide lists the tritium
7 limits in various countries, in the form of standards,
8 guidelines, or screening values.

9 This information was extracted from CNSC
10 staff's report called "Standards and Guidelines for
11 Tritium in Drinking Water", published in January 2008.

12 This report is available to the public on
13 the CNSC website.

14 The tritium levels in the residential wells
15 in Pembroke are already below all international standards
16 shown in this table. There are several residential wells,
17 however, above the European Union's screening value of 100
18 Becquerels per litre and these values are trending down.

19 For Day One of the hearing CNSC staff had
20 submitted a graph that showed the trending of tritium
21 levels in all monitored residential wells together on a
22 log scale. To provide more clarity, in this slide staff
23 has shown the variation of tritium levels in two
24 residential wells, RW-1 in blue and RW-9 in red, since
25 they had the highest measured concentrations among the 10

1 residential wells in the vicinity of SRBT.

2 This slide is shown just to provide a
3 contextual overview of the area around SRBT and it was
4 taken directly from CMD 10-H5.C and shows the locations of
5 the various residential wells. The residential wells are
6 shown in red.

7 The numbers you see on the figure linked to
8 these wells are the highest tritium concentrations in
9 Becquerels per litre, generally speaking, as of November
10 2009.

11 On Slide 13 we discussed the tritium levels
12 in two residential wells. This table shows all 10
13 residential wells that are routinely monitored by SRBT
14 every four months.

15 We have shown one set of results from the
16 past in comparison to the latest set of results which were
17 obtained last month.

18 Again, in this table we can see that the
19 tritium concentrations have come down in each residential
20 well and none of the values pose a health concern.

21 Discharges to sewer; this slide gives you
22 further information regarding tritium containing liquid
23 releases from the facility of SRBT. SRBT does not have
24 uncontrolled releases of liquid effluent containing
25 tritium to the sewers.

1 The current practice of SRBT is to collect
2 liquids in holding drums. SRBT checks the tritium levels
3 in this collected water to ensure that it is within the
4 release limits to dispose to the sewer system. SRBT
5 releases the liquid only once confirmed that the tritium
6 concentration is acceptable to be released.

7 SRBT's procedures ensure that liquid
8 effluent in excess of the licence limit is not released.
9 This practice has been observed and inspected by CNSC
10 staff at the SRBT facility.

11 SRBT's liquid release licence limit is
12 based on international clearance levels from the
13 International Atomic Energy Agency for discharges to water
14 and on SRBT's historical releases. The IAEA clearance
15 levels for discharges in water, ensures that the public is
16 protected.

17 The International Clearance Level is based
18 on a dose to the public of 10 microsieverts or less in a
19 year or 1 percent of the CNSC public dose limit. The
20 international clearance value considers exposure pathways
21 for tritium in sewage sludge and release to a river,
22 including condition of tritium in drinking water,
23 condition of fish and external irradiation from tritium in
24 shore or beach sediment.

25 Therefore, anyone who would handle the

1 sewage sludge in Pembroke or would come in contact with
2 the water in the sewer lines is protected.

3 The licence limit found in the current
4 licence and in the proposed licence for SRBT is 200
5 Gigabecquerels per year which is five times more stringent
6 than the IAEA recommended clearance limit for tritium.

7 Ann Erdman will now continue with the
8 presentation.

9 **MS. ERDMAN:** Thank you, and good morning,
10 Mr. President and Commission Members.

11 CNSC staff would like to now present
12 additional information on several items pertaining to the
13 facility, including the reclamation unit previously used
14 at the facility and waste management at the facility.

15 As part of the licence application, SRBT
16 indicated that they will not operate the reclamation unit.
17 When the unit was in use, SRBT obtained old expired
18 tritium safety signs from which they would reclaim tritium
19 by using the reclamation unit. SRBT continues to obtain
20 the signs but does not reclaim the tritium in their
21 facility.

22 CNSC staff has observed the reclamation
23 unit at the facility and it is disconnected from any power
24 source. CNSC staff will continue to observe the units
25 inoperability during future inspections.

1 SRBT will need to assess the reclamation
2 unit, including any impact on persons and the environment.
3 This would need to be completed prior to making any
4 decision on its future use.

5 CNSC staff will be updating the Licence
6 Conditions Handbook to ensure that it is clear that the
7 reclamation unit is not to be operated or used at the
8 facility.

9 Waste Management: As stated on Day One,
10 SRBT continues to manage the tritium-contaminated waste in
11 a manner that meets CNSC's expectations. SRBT is actively
12 managing waste by means of minimization and segregation
13 and stores the waste appropriately.

14 SRBT segregates the waste into different
15 waste streams, depending on the type of waste, and also
16 the level of contamination.

17 The CNSC's Nuclear Substance and Radiation
18 Device Regulations specify the quantities that are no
19 longer under CNSC's regulatory oversight. This is
20 referred to as a clearance level.

21 On Day One of the hearing, CNSC staff
22 discussed the clearance levels. SRBT transfers the waste
23 that meet the CNSC clearance levels to a conventional
24 waste facility. SRBT transfers waste not meeting the
25 clearance levels, such as the crushed glass contaminated

1 with tritium used in the tritium tube filling process to a
2 CNSC licensed waste facility.

3 CNSC staff has reviewed the information
4 from SRBT that SRBT has provided regarding their waste
5 management practices. CNSC staff is satisfied that SRBT
6 is managing their waste in compliance with the CNSC
7 Regulations.

8 CNSC staff has observed during inspections
9 that SRBT keeps itemized records of all waste generated at
10 the facility and other nuclear substance inventory. CNSC
11 staff has no concerns as to inventory control, including
12 recordkeeping.

13 CNSC staff concludes that SRBT is disposing
14 of all nuclear substances appropriately. This includes
15 the glass waste from processing tritium that they crush
16 before disposed to a licensed waste facility; any signs
17 that they reclaim the depleted uranium used in the
18 manufacturing of the tritium beds that store the tritium
19 and all other waste that is contaminated by tritium.

20 I'd like to move on to environmental
21 monitoring.

22 CNSC staff would like to now add
23 information regarding the environmental program and what
24 is sampled and also who should carry out the sampling.

25 The objective of an Environmental

1 Monitoring Program is to demonstrate that the releases
2 from a facility are being adequately controlled.

3 The second objective is to measure the
4 concentration of tritium in the different media in order
5 to be able to calculate the public dose.

6 With these two objectives in mind, the
7 Environmental Monitoring Program is established to sample
8 different media, representing the main pathways to human
9 exposure that helps us in estimating the public dose. The
10 main pathways to human exposure are usually air, water,
11 precipitation, vegetation and milk. Soil and pool water,
12 for example, are not considered main pathways.

13 It is CNSC staff's opinion that SRBT
14 samples all appropriate media to satisfy both objectives.
15 Therefore, no additional environmental monitoring is
16 required and CNSC staff is satisfied with the current
17 samples taken.

18 SRBT's use of a qualified third party to
19 carry out the environmental monitoring has been raised in
20 the past and at the Commission hearing in 2008. CNSC
21 staff recommended that SRBT continue to use a third party
22 for the environmental monitoring and this is a current
23 requirement of the licence.

24 CNSC staff agrees that this practice
25 continue and has included this item in the Licence

1 Conditions Handbook that was presented to the Commission
2 on Day One.

3 The qualification of staff at SRBT: It's
4 the obligation of the licensee to ensure that there is a
5 sufficient number of trained and qualified personnel.

6 CNSC staff's assessment is that SRBT is
7 qualified to operate the facility. CNSC staff has
8 established Radiation Protection Program and Environmental
9 Protection Program performance criteria used for
10 evaluating the programs which includes criteria for
11 personnel training and qualification.

12 CNSC staff does not prescribe what training
13 and qualifications the staff should have. However, CNSC
14 staff does verify that roles, responsibilities and
15 qualification requirements of all persons involved in the
16 Radiation Protection and Environment Protection Program
17 are clearly defined and documented.

18 Through various compliance verification
19 activities, CNSC staff assesses that radiation protection
20 and environmental protection personnel and supervisor have
21 the knowledge, skills and experience needed to effectively
22 implement and conduct the programs.

23 CNSC staff was at the facility in February
24 2008, at which time we performed an inspection to follow
25 up on the organizational changes implemented as a result

1 of SRBT's findings related to their organizational study,
2 specifically with the creation of the Environmental
3 Protection and Human Protection Coordinator positions.

4 The inspection included interviews and
5 qualification assessments of the two individuals
6 performing the radiation and environmental protection
7 duties.

8 CNSC staff concluded that SRBT staff is
9 knowledgeable and capable of conducting the day to day
10 activities these positions entail. Note that there is a
11 planned inspection this fiscal year focused on the
12 Radiation Protection Program which will include a
13 reassessment of the training and qualifications of SRBT
14 staff, who are responsible for the Radiation Protection
15 Program.

16 Thank you.

17 Mr. Elder.

18 **MR. ELDER:** Thank you, Ms. Erdman. The
19 additional information CNSC staff has presented today and
20 CMD 10-H5.C does not change CNSC staff's conclusion
21 presented at Day One.

22 SRBT remains qualified to carry out the
23 licence activities and has programs in place to adequately
24 protect health and safety of persons and environment and
25 maintain national security. We continue to recommend a

1 five year operating licence be issued to SRBT during which
2 -- however, during which period we are recommending that
3 SRBT provide annual updates to the Commission in a public
4 meeting on the performance of its Environmental Protection
5 Program and the status of financial payments. This
6 recommendation was included in our Day One CMD as well.

7 We are available to answer any questions
8 you may have.

9 **THE CHAIRMAN:** Thank you.

10 I'd like now to open the floor for
11 questions and the way we're going to conduct these, we're
12 going to do two rounds of Commissioners' questioning, so
13 the first one will go now. Then we will hear from all
14 intervenors and then we'll have a second one at the end of
15 this process.

16 So let me start with Dr. McDill.

17 **MEMBER McDILL:** Thank you. Several short
18 questions, I think.

19 With respect to the model that you
20 presented today on page 11 of -- this is to staff -- H5.C
21 -- that is, I guess, a modified finite difference model of
22 some -- you'd describe it as finite difference model, I
23 think. But the model is only presented from 2000 or the
24 pictures are or the graphs are only from start of 2006.

25 How well does it predict further back? Is

1 it only starting at 2005 because that's time "T=0" or has
2 it got any broader verification?

3 **MR. ELDER:** We'll ask Mike Rinker as the
4 Director of Environmental Risk Assessment Division to
5 start on that answer.

6 **MR. RINKER:** Mike Rinker.

7 In general the -- a model was based on data
8 that we had of pore water together with tritium
9 concentrations which had a finite period of time which
10 that pore water represented.

11 We considered the Commission's question of
12 a forward-looking model. So we didn't back-calculate and
13 make predictions backwards for -- like we did see during
14 that five-year period and what was observed at the wells,
15 that there was a reasonable correlation of the model
16 during that five-year period.

17 **MEMBER McDILL:** And there are no error bars
18 on the model. So can you give us a feeling of how broad
19 that blue line could be in any of those figures?

20 **MR. ELDER:** I'll ask Dr. Shizong Lei who is
21 the Geoscientist who actually did the model to answer that
22 one.

23 **DR. LEI:** Shizong Lei.

24 And we played around with various solvable
25 parameters and some, like professional judgement is

1 involved and we are unable to get an error bar on
2 something. But if needed, we can do that. This curve
3 there does give us the best fit of the monitoring data.

4 **MEMBER McDILL:** Thank you.

5 With respect to the values of tritium in
6 the residential wells, how will the licence proceed if the
7 ODWAC changes the limit to 20 becquerels per litre? What
8 will be the response of the Commission?

9 And then I'll ask the proponent as well to
10 answer.

11 **MR. ELDER:** I'm going to ask Mike Rinker to
12 address that one as well.

13 **MR. RINKER:** Mike Rinker for the record.

14 We've been engaging with the Ministry of
15 Environment over -- more than the past year on the
16 development of -- or their consideration of this
17 recommendation. The Ministry of Environment has taken
18 that recommendation of 20 becquerels per litre under
19 consideration and they would make perhaps a decision in
20 the future.

21 Typically and how they've informed us, is
22 when they implement a decision of this type there is a
23 phase-in period of approximately five years. Existing
24 facilities, if there is a need, there could be a risk
25 management plan and we have seen this for error standards

1 and for water standards, et cetera.

2 So we don't yet know what we would do
3 exactly, but it looks like in the first place the
4 residential houses are on a municipal water supply which
5 are well below 20 becquerels per litre.

6 The use of these other wells -- it looks
7 like the monitoring values are coming down. Many of them
8 are below 20. The one that is at its highest is still
9 decreasing to a very low level and even at the levels that
10 we see today, it is our understanding that these are very
11 safe.

12 **THE CHAIRMAN:** Can I just get clarification
13 here? Of all those residential wells, how many of them
14 are not being used for drinking water?

15 I mean you say that they are municipal
16 supply water. How many of them are actually being used
17 for drinking water? Are they all being used for that?

18 **MR. LEVESQUE:** Stephane Levesque for the
19 record.

20 Some of the wells that we have here are
21 used for a combination; some drinking water because
22 they're also connected to municipal water.

23 But I think what everyone's question really
24 is, is if you look at RW-8, which has the concentration
25 last measured in April of 238 becquerels per litre, that

1 would be the well that is used for solely drinking water
2 that has the highest concentration. Other wells are
3 either used by businesses or used by a resident that has a
4 source of municipal water.

5 But if your question is are they used all
6 for some limited use of drinking water; yes, they are.

7 **MEMBER MCDILL:** I'll continue my question
8 then to see if SRBT would have a response if the province
9 changes the guideline or changes the standard.

10 **MR. LEVESQUE:** Stephane Levesque for the
11 record. Thank you for the question.

12 We've also had preliminary discussion with
13 the Ministry of the Environment. That's something that I
14 understand they would be leading the efforts on. Should
15 that recommendation be accepted, the Ministry of the
16 Environment would have with us and the city to discuss an
17 action plan as to what would be taken and they could
18 include anything from connecting the existing wells to
19 municipal water to providing an external water source.

20 But at this point there's been no definite
21 plan by the MOE as what route they would take. They're
22 waiting on the decision and when that's done they would
23 get together with the municipality and our company.

24 **MEMBER MCDILL:** Thank you.

25 And my third question for this round: With

1 respect to the reclamation unit which is shutdown and the
2 power source is disconnected and there's no intention to
3 run it again, should or could SRBT consider
4 decommissioning or removing -- since there's some concern
5 in the community -- that device?

6 **MR. LEVESQUE:** Thank you for the question.
7 Stephane Levesque for the record.

8 I think that was a number of questions that
9 were asked by members of the public in their written
10 submissions and we've included responses in the letters
11 that we've sent them which I'll basically give you a small
12 overview of right now.

13 Over the next licence period, we intend on
14 doing a full evaluation of the reclamation process and
15 reclamation unit and make a decision by the end of the
16 licence period whether the system will be either modified
17 or decommissioned. We've done some research in this area.
18 We're aware of another company that was reported in the
19 tritium studies performed by the CNSC that used a
20 different type of reclamation unit.

21 We're investigating that right now, looking
22 at the feasibility of modifying our equipment to that, but
23 we give ourselves the goal by should we be issued a five
24 year licence, by the end of the licence period to either
25 have a decision throughout that licence period as to, yes,

1 we will use the unit with major modification and obviously
2 apply for a licence and then should we do that or to
3 decommission the unit.

4 **MEMBER McDILL:** And staff ---

5 **MR. ELDER:** Just two points on it.
6 Obviously once they've made a decision to decommission,
7 good practice would be that you would do this in a timely
8 manner, along -- that's just part of our good waste
9 management principles that we have communicated
10 consistency to SRBT.

11 Another one is just to clarify, although
12 this we're clarifying in the handbook -- what we're
13 clarifying in the Licence Conditioning Handbook is that
14 this operation of the facility is outside the licence
15 basis. The handbook is also very clear that only the
16 Commission, not staff, can change the licence basis. So
17 that if they wanted to use this, it would require a
18 decision by the Commission.

19 **MEMBER McDILL:** Mr. Chair.

20 **THE CHAIRMAN:** Thank you. Dr. Barnes.

21 **MEMBER BARNES:** Yes, a further follow-up on
22 a couple of those areas.

23 To staff -- you are recommending a five-
24 year licence, so I would also perhaps get your opinion
25 what happens in this licence if in this licence period the

1 province, the Ministry of Environment, does accept that
2 recommendation of lowering to say approximately 20
3 Becquerels per litre. How would this affect the
4 management to the licence, expectations in the sense
5 through a five-year period?

6 **MR. ELDER:** Just to summarize what Mr.
7 Rinker already said that when the Ministry of the
8 Environment introduces some of these recommendations, they
9 usually have -- they always have a transition plan which
10 is usually in the area of five years long. So what we
11 would expect is that SRBT would need to be in compliance
12 or figure out how they get in the compliance at the end --
13 around the end of the licence period.

14 So we don't think it would affect within
15 the current five years other than it would have to come up
16 with agreed action plan.

17 And just to state again, the current levels
18 are safe as they are in those wells. This is about going
19 into some measures about future use of groundwater and
20 pollution prevention on the province's side. But we are
21 fully committed to work with the province to figure out
22 how we would do that transition and what options would be
23 available.

24 **MEMBER BARNES:** This recommendation was made
25 last year. Have you any information that you can make

1 public about where the Minister of the Environment in
2 Ontario is in its consideration of that recommendation?

3 **MR. RINKER:** Mike Rinker. Our last meeting
4 was January of this year. They -- from what we
5 understand, they are weighing their options, considering
6 whether 20 becquerels per litre would be appropriate or
7 perhaps a slightly higher value, but they have placed no
8 timetable on what they would do. The next steps would be
9 staff at MOE to make a recommendation to their Minister,
10 which they have not done yet -- sorry, and also public
11 consultation on what their recommendation would be.

12 **MEMBER BARNES:** Thanks. I want to return
13 to the groundwater information. I appreciate the
14 additional information that you asked for and that you
15 provided here.

16 In your PowerPoint which you gave an update
17 -- this is on image 10 which was the SRBT well results
18 including April 2010. Could you -- the last three points
19 on that chart show rather a dramatic drop from roughly
20 70,000 or 78,000 down to maybe 22,000 becquerels per
21 litre. Can you indicate why there might be that level of
22 drop or even the variability in the two years prior to
23 that, sort of month to month variability? What produces
24 that?

25 **MR. LEI:** When we were developing their

1 modelling do the exercise, we didn't have the last two
2 results there. So the model was based on the monitoring
3 data before January 2010. So from the addition of the
4 three points, we believe that it's still bringing their
5 seasonal variation of the data they gathered.

6 And also our model predicts that very soon
7 the concentration would go down and this perhaps is
8 indication that it's going down maybe earlier than we are
9 predicting but we still need more monitoring data to maybe
10 update the model if necessary.

11 **MEMBER BARNES:** But that's a dramatic
12 decline within a very short period of time so is this
13 anything to do with the production levels or -- I don't
14 understand why there would be that rapid a decline?

15 **MR. RINKER:** Mike Rinker, for the record.

16 There is a rapid decline and there's more
17 variability in the historic monitoring at this well
18 compared to other wells. The photograph on the following
19 page shows the location of this well. It's immediately
20 adjacent to some pressure water drains.

21 So the inputs to the ground at this point
22 are very complex to say a well that's a couple hundred
23 metres away where the input is simply atmospheric
24 deposition.

25 So it's hard to model and understand what

1 exactly would be causing variations of this magnitude but
2 it's not a surprise at the same time when you could
3 consider that snow melt, historic snow melt loadings from
4 a drain or pipe, periodic pressure washing drains and so
5 on are also complicating this monitoring data.

6 The best we can say is that we've modelled
7 this in a conservative way to take account for the
8 variability and that in general the model is predicting
9 what we would expect for tritium.

10 The long term trend of 31,000 becquerels
11 per litre is really based on what we saw in 2006 on that
12 surface rise and in fore water. It is not taking into
13 account reductions and emissions. So if we can see in the
14 future a surprise dramatic decrease at lower values, that
15 also would not surprise us.

16 **MEMBER BARNES:** The other information
17 you've given is in figures 4 through 8, pages 12 through
18 15 of your presentation also include the little inset
19 graphs, if you like, that are to bedrock or top of
20 bedrock.

21 Could you just address what those data
22 reveal?

23 **MR. LEI:** Would you please rephrase the
24 question?

25 **MEMBER BARNES:** Sure. I point out in

1 figures 4 through 8 which are showing the tritium
2 concentration in the wells, you also include in each of
3 those an inset curve showing tritium concentrations which
4 are hard to read but you can just more or less see them in
5 the top right-hand corner of the values going down to
6 bedrock or to the top of bedrock. Could you just address
7 what we should read into those numbers?

8 **MR. LEI:** Shizhong Lei. Those -- the
9 insert of the figure is from SRBs, the comprehensive
10 groundwater study reported which is the soil profile. The
11 soil sample they took in 2006 -- it shows how the tritium
12 is distributed vertically in a soil column at that well.

13 **MEMBER BARNES:** And the black dot, the very
14 dark, the large black dot in each of these represents
15 what, top of bedrock or ...?

16 **MR. LEI:** Those black dots are actually
17 SRB's estimate of the soil -- tritium concentration in the
18 soil fore water but in our tradition, we didn't use those
19 predicted numbers.

20 **MEMBER BARNES:** But if I look in say figure
21 8, I think it's figure 8 with the caption below which is
22 MW0729 which is going -- showing the values going down, it
23 says bedrock, so again I think it would be about 7 metres
24 down. Do I interpret that to show that the tritium values
25 are approximately 500,000 becquerels per litre, the

1 deepest value there?

2 **MR. LEI:** Yes.

3 **MEMBER BARNES:** And if I went to the one
4 above, then again the lower values around 5 to 6 are in
5 excess of 100,000. It's a log values, so maybe a 150,000
6 becquerels per litre?

7 **MR. LEI:** That's correct.

8 **MEMBER BARNES:** And so your statement of
9 the highest values in the wells are 59,000 becquerels per
10 litre is not entirely correct?

11 **MR. RINKER:** Dr. Barnes, those are the
12 values that you see in the insert are the values of
13 tritium in the soil fore water above groundwater and so
14 that soil fore water would percolate down into the
15 groundwater. The wells themselves are into the
16 groundwater so there would be a dilution factor and as
17 tritium gets washed away, et cetera.

18 **THE CHAIRMAN:** I must say I don't
19 understand those graphs. There's no time elements. How
20 does that relate to when was this measurement taken? I
21 guess I don't know the purpose of this insert. What are
22 you trying to demonstrate here?

23 **MR. RINKER:** Yes. The insert is a one-time
24 sample taken in 2006 and it represents -- on the x-axis, I
25 realize the font is not very big. That is height. So at

1 the very top of that graph is the surface of the ground
2 and as you move down in that graph, you're going deeper
3 into the ground towards the groundwater.

4 So it's a snapshot in 2006 that represents
5 historic tritium loading to the soil pore water. So as
6 time goes on, tritium percolates down towards the
7 groundwater. However, in one year, there was a snapshot -
8 - there was a sample taken where tritium bios were taken
9 throughout the soil profile.

10 So the model was based on this incident
11 time with the assumption that over time this tritium
12 profile would percolate down into the groundwater.

13 **THE CHAIRMAN:** Would it make sense to then
14 show another snapshot as 2009 or '10?

15 **MR. RINKER:** However, we only have the data
16 from this one year in 2006.

17 **THE CHAIRMAN:** Dr. Barnes?

18 **MEMBER BARNES:** So what is the depth of
19 groundwater in most of these wells?

20 **MR. LEI:** It's around five to six metres.

21 **MEMBER BARNES:** So are all these dots above
22 the groundwater level?

23 **MR. LEI:** Pardon me? Would you please
24 rephrase?

25 **MEMBER BARNES:** Are all these points on the

1 curve above the level of groundwater?

2 **MR. LEI:** Shizhong Lei.

3 Not necessarily. Next time maybe when
4 there are -- this sample was taken when they were draining
5 the bore holes so some of the sample those are actually
6 below the groundwater.

7 **THE CHAIRMAN:** Mr. Levesque?

8 **MR. LEVESQUE:** Stephane Levesque, for the
9 record.

10 If I can just expand on that a little bit
11 and on the short time variability between the measurements
12 that you're noticing, if you look at -- it's on our
13 written submission Day 1 as reference 36. It's the
14 comprehensive report groundwater studies at the SRB
15 facility.

16 In that groundwater report, there includes
17 a number of soil samples that were taken at the time of
18 drilling for each of the wells and what a third party did
19 for us and they analyzed the tritium concentrations and
20 soil moisture at different depths of the well. And if you
21 analyze those concentrations and soil moisture, especially
22 in well number 10, you can see the same large variability
23 that we're getting in the sampling results between
24 periods.

25 So for example, as the water percolates

1 through the ground, I think as people were explaining, is
2 over time that it will follow along the same type of path
3 that the soil moisture and for example, if I give you a
4 number here, when the well was first drilled in 2006, the
5 soil that was taken right at the bottom which is just at
6 over six metres deep, the concentration of the water in
7 that soil was 150,000 becquerels per litre. Approximately
8 half a metre higher than that, the next soil sample was
9 60,000. The next one higher than that, it went down all
10 the way to 10,000; to then go back up, the soil sample
11 above that, to 25,000 and then to 154,000.

12 So I think those variations how they did
13 occur in that well, as was explained by staff, is we've
14 had a number of pressure washing events -- of events where
15 there were high concentrations that were dumped into the
16 ground in short time periods and that's what we're seeing
17 in the ground. That's what we're seeing in that well.

18 I think as you go away from well number 10,
19 you see a little bit more predictability as to what you're
20 seeing in groundwater, not a short time span which is more
21 related to where our ongoing emissions were.

22 **MEMBER BARNES:** So to staff, you told us
23 roughly the depth to groundwater. Remind us again of the
24 depth to bedrock in this area around the plant?
25 Approximately.

1 **MR. LEI:** I have to -- sorry, Shizhong Lei.
2 I have to look through the paper to find
3 the exact number but it's around six metres I guess.

4 **MEMBER BARNES:** So if I go to your Figure 3
5 on staff presentation which shows a conceptual
6 illustration of tritium in soil and groundwater, so it is
7 conceptual illustration. Could staff explain how accurate
8 in the sense this conceptual might be?

9 What we ask for I think -- Commission asked
10 for last time was some indication of the nature of this
11 plume. So I think in the past, maybe not on Day 1 but you
12 gave some indication of the direction if you like as a
13 surface map looking down on the plume but here we have a
14 cross-section through the plume and showing that it
15 extends, at least the dark portion, into the bedrock.

16 I have always been trying to find out what
17 the values were in the bedrock which might be far greater
18 fractured and a much quicker lateral flow of contaminated
19 groundwater.

20 But how many wells do you have that would
21 actually give you some control or is this illustration
22 based more on modelling or guesswork than actual data
23 coming from particular wells?

24 **MR. RINKER:** Mike Rinker, for the record.
25 This is essentially a cartoon that is not

1 based on science. It is put in here to explain when we
2 get into a discussion of the math and the model and the
3 types of models and calculations to at least have a figure
4 that we can illustrate to communicate to non-scientists of
5 what in general we're talking about.

6 The depth of water table and the shape of
7 the plume, et cetera, are there for illustrative purposes
8 about processes as opposed to a description of
9 observations at SRBT.

10 **MEMBER BARNES:** So do we have any idea of
11 how far that plume extends into groundwater? Do we have
12 any idea of how far it extends laterally or is that all
13 guesswork?

14 **MR. RINKER:** Mike Rinker, for the record.

15 In relation to the schematic, that is not
16 based on an understanding of the size of the plume. What
17 we do have is a series of networks of wells so that we
18 have an indication of what -- at the margin wells what are
19 those values.

20 The density of those wells -- I'm
21 considering we're talking about a very small facility --
22 the density of those wells is not sufficient enough to map
23 out what a potential plume would look like. And
24 considering that there isn't a current risk to human
25 health to request, the requirement to put in another

1 series of wells we thought would be unrealistic and we
2 worked with what data we had.

3 **MEMBER BARNES:** Okay.

4 **THE CHAIRMAN:** But I'm still trying to
5 understand the science here but if you have those wells
6 spread all over the area and you sample some of the water
7 in the river itself and in the sewage, don't you have a
8 pretty good feel as to how the water sort of propagates or
9 not, or is the bedrock way below that?

10 **MR. RINKER:** Mike Rinker, for the record.

11 The majority of the wells that have
12 concentrations of tritium in them are not -- are not a
13 result of a groundwater plume, they're from atmospheric
14 emissions. The only wells that would intercept the plume
15 are located very close to the facility and so that large
16 network of wells don't actually indicate what we see in
17 groundwater as a plume resulting from the facility.

18 **THE CHAIRMAN:** Okay. Thank you.

19 Mr. Graham?

20 **MEMBER GRAHAM:** Yes, thank you.

21 If that's the case what you just said, the
22 majority is from precipitation and so on, can you explain
23 why RW-8, even though it's very low in increase, it's
24 showing an increase rather than a decrease from November
25 2007 to April 2010? That's on your slide 15.

1 **MR. RINKER:** Mr. Graham, we're scrambling
2 to get a good look at this well to make sure that my
3 answer is correct but my understanding is the soil profile
4 above this groundwater monitoring well has a trend in pore
5 water that mimics the concentration we have seen over time
6 and that's evidence that would support an atmospheric load
7 because it's coming from the surface of the ground down to
8 the well, versus a lateral or a horizontal movement.

9 **MEMBER GRAHAM:** But is the loading
10 increasing above ground?

11 **MR. RINKER:** The model was based on a
12 snapshot in 2006 and so there was a period of time where
13 atmospheric loads were higher and lower. We do not have
14 data of pore water that would result from current
15 emissions.

16 We expect the pore water to be much lower
17 based on current emissions. So our models are based on a
18 period of which historical emissions have occurred where
19 they were variable and higher.

20 **MEMBER GRAHAM:** Okay. I think I'll ask Mr.
21 Levesque to explain. I'm still not clear of why in 2007
22 RW-8 had a concentration of 236 and in 2010, where all the
23 others trended downward, it trended upward.

24 Mr. Levesque?

25 **MR. LEVESQUE:** Stephane Levesque, for the

1 record. Thank you for the question.

2 In explaining RW-8, I'd like to draw your
3 attention also to two wells that are just beside RW-8 and
4 that's basically RW-9 and 10. They're immediately beside
5 each other and I think we need to look at a snapshot at
6 all three wells to get a better understanding of what's
7 going on first.

8 To put things in perspective, if we look at
9 RW-8, I think it's important to know that that well is on
10 the other side of the Muskrat River. So between the
11 facility and those three wells the Muskrat River is in
12 between.

13 So groundwater flow from our facility
14 discharges into the Muskrat River, not at that position,
15 but discharges into the Muskrat River and won't be there
16 for a long time but even if the groundwater flows to such
17 an extent that it would, it would discharge in Muskrat
18 River and not go to that well. So that's the first thing.

19 The second thing is the groundwater flow
20 direction is not at all in the direction of RW-8. It's
21 located quite far away from there. So the first thing is
22 if groundwater flow was fast enough, it would discharge in
23 the groundwater of the Muskrat River. So it's not in the
24 direction of that.

25 And now, three, if we just look at RW-8 and

1 the two wells side by side, you can see that all those
2 wells are influenced the same way as each other. And the
3 difference between the results of those two wells is
4 basically in the construction of the well, their depth,
5 the soil consistency, the porosity in that area.

6 I think that if you look at 9 and 10, you
7 can see that RW-10 is fairly stable since the beginning, a
8 very low level, near detection level, and RW-9 has gone
9 down from what it was before but, yet, RW-8 is constant.

10 Obviously, the emissions percolating down
11 through that soil, as they are with our other wells, is
12 doing it at a much slower rate at RW-8 and that's why we
13 haven't seen a decrease yet. But we expect in a number of
14 decades, as we will with all wells eventually, that the
15 concentrations in that well will lower as well.

16 **MEMBER GRAHAM:** But the way the plume
17 moves, if I see that, if there is a plume moving that way,
18 it should be intercepted by 9 and 10 before 8. Eight (8)
19 is further away and that's why I couldn't understand why
20 there is an increase.

21 According to your Figure 2, RW-8 is further
22 away. It's 204 Boundary Road which is further away from
23 the facility than what 9 and 10 are.

24 **MR. ELDER:** Well, we'll give you detail on
25 them. These wells, as Mr. Levesque said, are on the other

1 side of the Muskrat River. So they're not affected by the
2 groundwater plumes. They are totally dependent on -- they
3 are all dependent by the rain -- tritium washing out in
4 the rain.

5 They are also not designed as monitoring
6 wells. They are existing drinking water wells. So there
7 is a lot of variation in the wells that can lead to a lot
8 of, again, variation in the results you see.

9 The three wells are quite close together.
10 Yet, we are seeing very different imprints on them and it
11 could be the design of wells. It could also be on how the
12 behaviour of the rain and Dr. Mihok will give you a little
13 bit on how there can be a variation in that.

14 **MEMBER GRAHAM:** Fine, but my original
15 question was, can you explain why if it is not from the
16 plume, if it's from precipitation that it's increasing
17 rather than decreasing at a time when we're supposed to be
18 manufacturing and processing in a more prudent way than
19 what there was, not doing it a time of ---

20 **MR. ELDER:** One is, as I said, I would say
21 if you look at the table, there is a table in Figure 3 of
22 our original CMD that gives all the data. I would say
23 it's relatively stable and decreasing. Don't forget that
24 the measurement sensitivity is about 5 Becquerels per
25 litre. So 236, 238 is the same number within non-

1 certainty in the measurement.

2 But it is strongly affected like all the
3 other wells that what we are seeing in these wells is not
4 the current emissions. What you're seeing is still the
5 effect of the emissions from a number of years ago
6 because, again, the rain falls on the surface and then it
7 has to work its way down into the well.

8 Based on the characteristics of the well,
9 that process of how slow or how fast it moves down will
10 vary on the depth of the well and on the soil
11 characteristics at that site.

12 There is a lot of variation in these points
13 and we agree it's very hard to precisely model what's
14 going to happen in these wells, which is why we're saying
15 that you still would need -- while we are recommending a
16 five-year licence period, there has to be very close
17 monitoring in this period.

18 **THE CHAIRMAN:** Can I jump -- you will
19 continue to monitor and collect data and annually report
20 to try to verify how good the model is? That's what -- is
21 that the plan?

22 **MR. ELDER:** Yes.

23 **THE CHAIRMAN:** Thank you.

24 **MEMBER GRAHAM:** If I may, Mr. Chair, that
25 wasn't going to be my line of questioning but I had to

1 follow up. But I have several questions that I'd like to
2 ask.

3 The first one is with regard to the
4 reclamation unit. My understanding is, from what we have
5 heard this morning earlier, that in the licence handbook
6 and so on, that does not permit that to be used at this
7 time and during this licence period.

8 Could you explain if that reclamation unit
9 was going to be restarted or re-commissioned, what's the
10 procedure of the Commission hearing about that?

11 **MR. ELDER:** So the process would be, as you
12 know in these -- the new format of the licence, we have
13 defined what's called the licensing basis for the facility
14 which defines what's -- at a very large scale what is in
15 and out.

16 If something is considered outside the
17 licensing basis, and this is what we consider the
18 reclamation to be outside because we don't have a valid
19 safety case for it, it's essentially a licence amendment
20 that would be needed to allow that to be brought into the
21 licence amendment and licence amendments can only be done
22 by the Commission. So we would have to bring it to the
23 Commission, back to the Commission.

24 **MEMBER GRAHAM:** My next question is with
25 regard to the decommissioning and the decommissioning

1 repayment schedule or building that fund up to where it's
2 supposed to be.

3 Between the time of Day One and Day Two
4 there was supposed to be an additional \$45,000 paid to
5 that fund. Has that been paid?

6 **MR. ELDER:** Yes, it was.

7 **MEMBER GRAHAM:** And there's going to be a
8 reassessment of the decommissioning plan in 2011 and if
9 that trends upward, the decommissioning will cost more
10 than what the fund is requiring now.

11 Will there be -- will the deadline or the
12 2014 objective of reaching that, will that still be met in
13 2014 even if -- and I don't want to get into hypotheticals
14 but if the decommissioning fund had to be increased, will
15 it still be a licence condition or in the handbook that
16 2014 has to be met?

17 **MR. ELDER:** Well, this is another thing
18 that we have to bring back to the Commission because if we
19 determined that the amount of the financial guarantee has
20 to change, it's actually the Commission, not staff that
21 accepts that new financial guarantee. At that time, there
22 would be some analysis of the payment plan as well.

23 **MEMBER GRAHAM:** In the cost recovery, is
24 that status -- is that being followed as per the
25 agreement?

1 **MR. ELDER:** Yes, it is.

2 **MEMBER GRAHAM:** My only other one question
3 I have in round one, Mr. Chair, is with regard to
4 disposals of landfill. And I asked those questions in Day
5 One and I went back through the questions and back through
6 the answers and so on, but something is just not clear in
7 my mind.

8 There are two types of disposals that SRBT
9 follow. One is to regular landfills and other materials
10 is to a licensed facility by CNSC like AECL or some other
11 place.

12 The disposal into the landfill, how is --
13 and this line of question is to CNSC -- how is that
14 monitored to make sure that the material going to the
15 landfill is below or meets the criteria of material going
16 into the landfill?

17 And I -- there was 65 barrels and we gather
18 we had a -- so many were done in one year and so many the
19 next and there's still some in inventory and I just want
20 to know how those are monitored to ensure that material
21 going into the landfill is not contaminated.

22 **MS. ERDMAN:** Ann Erdman.

23 The licensee, SRBT, is required to keep
24 records of all waste management, all inventory at their
25 facility. This is verified by staff at inspections.

1 For waste disposal, with the new clearance
2 levels, the new ones that were adopted or put into the
3 regulations in 2008, it's -- the onus is on the licensee
4 to ensure that their waste program incorporates all waste.
5 So their waste program must incorporate when waste becomes
6 under the clearance levels and is therefore released.

7 So at the CNSC we looked at both the way
8 that they, SRBT, verifies this -- so they submitted
9 information to us, we did a desktop review of which we
10 looked at the numbers, actually their way of doing it, the
11 way that they did the sampling of the waste and we'd
12 looked at their calculations.

13 So we ensured that the -- looking at that
14 information we verified they met the regulations.

15 Their requirement is to keep their records
16 and during future compliance inspections they will have to
17 demonstrate where their inventory goes. And those will be
18 records that CNSC staff will look at.

19 **MEMBER GRAHAM:** You actually monitor or
20 check a container before it goes to landfill on spot
21 checks or anything else to ensure that this is done?

22 **MS. ERDMAN:** No, we don't.

23 **MEMBER GRAHAM:** The material going to
24 landfills, I believe, would be coveralls, gloves, things
25 like that, waste, sweepings off the floor and things like

1 that.

2 In other facilities, like a power plant and
3 so on, is that -- does that material also go to a landfill
4 or is that gone into dry storage?

5 **MR. ELDER:** Consistent with -- I'm not sure
6 if I can give you absolutely all the details, but
7 consistent with good waste management practice of trying
8 to segregate and separate waste, all the power reactors
9 have developed programs where they put things into -- AECL
10 has what's called a "Lightly Clean Program" and trying to
11 minimize the volume of material that has to go to a low-
12 level waste.

13 So they all do this. They all review.
14 They all measure, monitor, separate, segregate and
15 determine which ones need to have a -- values that need to
16 be -- go to low-level waste.

17 First is the material that is below
18 clearance levels and can be sent to other storage
19 facilities.

20 So it's standard practice and is actually
21 consistent with what's considered good waste management
22 practices.

23 **THE CHAIRMAN:** Go ahead.

24 **MR. LEVESQUE:** Stephane Levesque, for the
25 record.

1 I'm sorry; I'd just like to provide a bit
2 of additional information on that, just -- I think that's
3 relevant and important.

4 We've researched what other facilities do
5 regarding their waste that meets the criteria, the
6 regulation, and like us, yes, they do dispose of it to
7 landfill.

8 Again, the requirement concentration under
9 the regulation is to meet concentration of the waste of 1
10 MBq per gram. It's important to note, I think, from our
11 detailed assessment of all the waste we're actually at
12 less than 1 percent of what the regulatory requirement is
13 for allowance to disposal to landfill.

14 In addition, that being said, I think we
15 should note that yes, we disposed 20-odd drums a year for
16 the last two years. But due to our waste minimization
17 practices that we've implemented at our facility we expect
18 that numbers that drop greatly since then where we are
19 only going to generate two to four drums a year of that
20 type of waste over the years to come.

21 Thank you.

22 **THE CHAIRMAN:** Thank you.

23 Monsieur Harvey?

24 **MEMBER HARVEY:** Merci, monsieur le
25 president.

1 I would like to come back to my first
2 question for the Reclamation Unit.

3 A large portion of the public perception on
4 SRB activities derive from the time that this Reclamation
5 Unit was operated. And I understand that if a request for
6 such a unit would come to the Commission, that the
7 Commission itself will have to decide.

8 But would the public be invited to
9 participate to such a decision or would that be just a
10 Commission decision without any public opportunities to
11 participate?

12 **THE CHAIRMAN:** I think staff will start.

13 **MR. ELDER:** I'll start but the real answer
14 is through Mr. Leblanc.

15 But there are criteria that the Secretariat
16 has set up on when it would be -- what's called their
17 abridged hearing versus a full public hearing. And one of
18 the considerations that we have to show is that there is
19 not a level of public interest in the subject.

20 Clearly in this case in the Reclamation
21 Unit there is public interest in this, so that our staff
22 recommendation would be that this would be brought to a
23 full public hearing.

24 **THE CHAIRMAN:** So it's as per usual, we
25 make those decisions on a case-by-case basis, subject to

1 the application. But I think without pre-empting our
2 decision process I would sort of concur with the
3 recommendation.

4 **MEMBER HARVEY:** Okay. Thank you.

5 Now, Mr. Levesque, what would be the
6 incentive to submit such requests?

7 Do you have any obligation to receive and
8 to dispose of sources that has been -- that you have
9 provided to clients? Do you have any obligation if the
10 client at the end decides to return it to the SRB?

11 Do you have any obligation to do something
12 and -- because I had difficulty to understand because in
13 your supplementary document you provided you said sometime
14 the client will have to pay them, that there would be a
15 fee, sometime there would not be a fee.

16 So could you elaborate a little bit on
17 that?

18 **MR. LEVESQUE:** Thank you. Stephane
19 Levesque for the record.

20 From my understanding there's no obligation
21 to take back the product. We do have a recall procedure
22 in place. We do out of good practice offer a disposal
23 route for our customers to take back, not only our product
24 but product from our competition.

25 Again, as I elaborated in the written

1 submission, that's done in a variety of ways, we got
2 certain military customers that pay for disposal upfront
3 so we're -- in that case we are under obligation to take
4 back their product.

5 In other cases, as with tritium-activated
6 self-luminous exit signs the customers are able, according
7 to the regulations, if they meet the criteria set out in
8 the regulation, to dispose of it through landfill but we
9 still offer those people a disposal route.

10 When you ask what would be the basis for a
11 reason for us to want to start the reclamation process
12 again, it's basically for recycling of the tritium gas.

13 Not only is there gas in the expired
14 products that we get back from our customers, our
15 competitor's customers, but we also have light sources
16 when we produce that don't meet our quality requirements
17 and that now are disposed of.

18 And we'd like to be able, possibly, to
19 reuse the gas within those -- those light sources or we
20 have a few light sources that have leaks, don't meet
21 requirements and that contribute to our -- to our
22 emissions right now.

23 So if we were to say to take a light that
24 we know has a certain leak rate to the light and we could
25 basically -- instead of containing the light source we

1 basically regain the tritium in it and reuse it.

2 So there's a variety of reasons why we'd
3 want to do it, not just from a product recycling point of
4 view but from a day-to-day operational point of view.

5 **MEMBER HARVEY:** So are you planning -- you
6 said you were looking at some new techniques and can you
7 foresee in the short future a project to be submitted --
8 in the next five years, for example?

9 **MR. LEVESQUE:** Stephane Levesque, for the
10 record.

11 Obviously it will depend on the type of
12 licence term that we're provided here today because
13 obviously licensing efforts and new licensing efforts are
14 so taxing on a small company like ours, that first to be
15 able to properly assess the reclamation process, we would
16 need some time to do it but should we be given a five-year
17 licence, we've internally made a commitment here that
18 within two, two-and-a-half years within that licence term,
19 we would basically come to the staff with our decision as
20 to whether we're deciding to decommission the equipment
21 and give a timeline for that or to propose a new type of
22 modified equipment and provide the full assessment for the
23 staff's review and obviously accompanied by a licence
24 application.

25 To elaborate on the point that was made

1 earlier, not only is it from the public's point of view,
2 obviously they want to know so we wouldn't want this to be
3 something, to be honest, that only staff had a say in. We
4 would want to have some type of public hearing or forum in
5 it because the actual reason why we stopped doing a
6 reclamation process is because we had identified that in
7 our meetings with the public to be their single largest
8 source of concern other than third party monitoring. So
9 it's not something as a company that we think would be
10 very smart to just want to try to get approved quick
11 without much public consultation. We'd want the public
12 involved and to have the same -- what's going to happen
13 then hopefully, hopefully make them comfortable where
14 we're going to do if we so decide to start the operation
15 or a modified operation again or decommission the
16 equipment.

17 **MR. ELDER:** Just to add one point about the
18 recall procedure. Obviously there's some concern that
19 when the Nuclear Substance and Radiation Devices
20 Regulations were amended in 2008, the word "result"
21 recalled procedure for self luminous safety signs was
22 removed, was actually replaced by a broader condition that
23 any manufacturer and distributor of radiation devices --
24 not only tritium science -- but any manufacturer have a
25 procedure for return of radiation devices to the

1 manufacturer. So the word "recall procedure" was removed
2 but there is still a requirement to have "return to
3 manufacturer" and it was broadened out to all device
4 manufacturers.

5 Our view is just a broadening of that and
6 obviously the word "recall" was removed and I think that
7 has led to some confusion. But to clarify, the
8 expectation has remained and the requirement actually has
9 remained the same.

10 **THE CHAIRMAN:** Just to clarify, I'm still
11 puzzled by when you -- there's an obligation to return.
12 The users don't have to return the material, right? So
13 presumably after a certain amount of time the equipment,
14 the gas decays and normally how long is this particular
15 science good for and then what do they do -- your clients
16 -- how many of them, what percentage of your clientele
17 actually return this stuff and what are the procedures in
18 other countries, you know, to disposing of this material?

19 **MR. LEVESQUE:** Stephane Levesque for the
20 record.

21 I'll try to do my best to answer your
22 question. I think one of the things people have to
23 remember is that the facility in Pembroke has been in
24 operation since 1990 so you're looking at a 20-year cycle.
25 While our company has been in operations there's been two

1 manufacturers of the product, a third one to a smaller
2 scale, that are still in the world producing these devices
3 and there used to be a number of other companies that are
4 no longer administered so they have been closed. So we're
5 dealing with a very large question as to if we deal only
6 with stockpile SRB Technologies Canada's products since
7 we've been in operation since 1990, we have the record for
8 -- records filed those products and where they were
9 shipped and we attempt to get the product back from a
10 customer obviously to try to generate sales for ourselves.

11 But I'll give you an example in the case of
12 the military, even Canadian military, their product is
13 designed typically for a seven to ten year life. The
14 military, due to their budget constraints especially in
15 Canada, have continued to use the product at a much
16 decayed brightness, much decayed basically quality, but
17 they've continued to use a lot of the products.

18 Some other military agencies also faced
19 with some project constraints have just basically decided
20 to store the product. We've tried to get them to dispose
21 of it, obviously, because we want to sell them replacement
22 but there's a variety of things out there -- I'm not aware
23 of regulations in every country but I know that customers
24 have chosen to either store their product, to keep using
25 it although it does mean that quality requirements that it

1 was intended for, for use, or some have decided to dispose
2 of it. So it's a variety of things that happens and
3 couple that with a large number of manufacturers that
4 either existed, supply products and the ones that
5 currently supply product that were also asked to look at.
6 It's a much broader question.

7 **THE CHAIRMAN:** My question is, when a
8 customer wants to dispose of this, are they aware of
9 what's the right procedure and what's the level of
10 radiation this device has or they are aware of how you
11 dispose of it?

12 **MR. LEVESQUE:** Stephane Levesque, for the
13 record.

14 I think at SRB Technologies in Canada we've
15 done our best to educate the customers for them to be
16 aware of what they have to do when they dispose of
17 products so I can categorically say from my tenure as
18 president of the company that the people that have
19 purchased product from our company are aware of how they
20 have to dispose of it and what the methods are and what's
21 approved or not. But again, we're only a small part of
22 the picture and I can't say that from my personal
23 experience that every customer is aware. We're trying to
24 make them aware because we're trying to generate sales.
25 The more people that are aware as far as we're concerned,

1 the better it is for us but I can only attest to the
2 people that we, our company, has sold product to.

3 **THE CHAIRMAN:** My last kind of a question
4 on this. You're aware of the Walmart situation, right, in
5 the State? I don't know if they are part of your
6 clientele, but it caused all kinds of turmoil over there
7 about the disposal and storage of this.

8 Walmart didn't know -- Walmart, it seems to
9 me, didn't know how to dispose of this or didn't know how
10 to store of it, so what's going on?

11 **MR. LEVESQUE:** Stephane Levesque for the
12 record.

13 I really appreciate that question. There's
14 a number of large companies that we've sold product to.
15 We've tried to -- I can say that on the record -- we've
16 tried to basically get in contact with Walmart and offer
17 them a disposal arrangement for the product that they had
18 but we weren't able to get that contract. We again
19 educate our customers as to what the regulations are, how
20 important it is to track the product and to dispose of it
21 properly and we've done that with a number of customers
22 that we've disposed -- and that had disposed of product
23 properly. I think it's a shame and it puts a black mark
24 on the industry, what happened in this case, but
25 fortunately and unfortunately in some sense, we had

1 absolutely nothing to do with what happened with the
2 disposal there. We tried but we weren't able to get
3 involved but we try with our customers to basically
4 educate them so that this doesn't happen.

5 **THE CHAIRMAN:** Mr. Harvey?

6 **MEMBER HARVEY:** I thought that after what
7 you said, Mr. Elder, that at the end of the useful life
8 that kind of product could be disposed in a normal
9 landfill. So is it correct or there is some difference?

10 **MR. ELDER:** There are some requirements in
11 the regulation that spell out when they can be sent to a
12 landfill but there are some restrictions on that. There
13 were restrictions on the amount of tritium means a sign,
14 there's a restriction that it cannot be a manufacturer who
15 does this. So if it's returned to a manufacturer or a
16 licensed facility, they cannot send them to landfill.
17 It's just a way to control the volume and there is also a
18 requirement to have this, the manufacturers to have this
19 return procedure to sort of limit the amount that would
20 potentially go to landfill.

21 But the analysis in terms of the landfill
22 is again based on the clearance levels and the analysis of
23 the signs is to say that they would not pose a health
24 problem if they were sent to landfills.

25 **MEMBER HARVEY:** Thank you. And one other

1 question. It's about that standard of 7,000 or 20
2 becquerel. Should Ontario adopt 20 becquerel? Would that
3 have an impact on the licence?

4 **MR. RINKER:** Mike Rinker, for the record.

5 In general, I think, no, certainly over a
6 five-year period the values of tritium that would be above
7 the standard right now are based on legacy or historic
8 emissions from SRB.

9 I think the current emissions which are at
10 least a hundredfold less than what was done previously
11 would end up with values that are within reach of the
12 standard.

13 With that and the addition of -- we don't
14 know when a decision would be considered by the Minister
15 of Environment for Ontario, there's some time, and then
16 they usually have a phase-in period for several facilities
17 -- for any facilities that would be impacted by this
18 potential standard.

19 **MEMBER HARVEY:** Thank you.

20 **THE CHAIRMAN:** Thank you.

21 Mr. Tolgyesi?

22 **MEMBER TOLGYESI:** Merci, monsieur le
23 président.

24 One question is to SRB, I'm coming back to
25 the training.

1 What we could observe that in general the
2 training is done by inside training; okay? Somebody is
3 coming, you want to train him.

4 Also, when I was looking at the list there
5 was no personnel, at least on the senior staff, I think
6 it's 11 people, with technical background education.

7 What I think that, you know, there are two
8 needs, fundamental needs for instructor; one is the
9 technical knowledge, another one is the teaching or
10 trainer capacity.

11 When you look in Appendix C there is no
12 comments or notes on the specific training for the
13 trainer. What I mean is how to explain to eventually a
14 trainer how to teach. The pedagogical -- how you call it
15 -- pedagogical side; there's nothing on that.

16 So do you have -- do you have some outside
17 training done also or do you have some outside auditing on
18 knowledge or performance of trainers?

19 **MR. LEVESQUE:** Stephane Levesque, for the
20 record.

21 If you don't mind I'll answer your question
22 much like that, something small on meeting the proposed
23 new standard; if that would be okay. Just to follow
24 staff's answer.

25 I think it's important that I reiterate

1 that if you look at the residential wells that are
2 currently used for drinking water as a sole source of
3 drinking water everyday, the one with the highest
4 concentration is RW-8 that we were talking about that is
5 in the 200 range; so let's use 300.

6 Those -- that concentration is as a result
7 of emissions that have occurred prior to 2005. If we look
8 at -- we reduced our emissions by 97 percent from what
9 they were then, so the emissions are only 3 percent of
10 what they were in 2005 and much lower what they were in
11 years before.

12 So if you take only 3 percent of the 300
13 you would see, as CNSC staff said, that we're well within
14 the reach of the -- of the new standard, so we expect that
15 if the facility was to start today to the emissions that
16 we have today that all the residential wells that we have
17 and that we've monitored will be well within reach of that
18 standard. So we're not looking at being far off of what
19 we are as to how we're operating today.

20 What we're dealing with is really legacy
21 issues from our emissions at past -- I just think that was
22 an important point.

23 Regarding -- regarding training, if you
24 look at the chart that I've given in Appendix C, which you
25 have, we do have some technical training onsite, myself

1 personally I have a Bachelor in Engineering and I've been
2 at the company since 1993.

3 We used to be a very small company where a
4 lot of the staff have basically worked intimately with me
5 over a number of years.

6 We used to have other people that has
7 scientific background in the past, technical training, and
8 I assure you that the quality of the staff that we have,
9 although they may not have the -- some of the technical
10 educational requirements far exceeds what we had at the
11 facility before with those -- with that educational
12 background.

13 To answer your question, we do a lot of
14 training, yes, onsite, I think I have outlined how that
15 training takes place in the written submission and that's
16 also complimented by external training.

17 The Registrar, BSI Management System has
18 audited our auditors and some of our staff to perform some
19 of the auditing function. When -- to answer your question
20 specifically -- is the ability of the trainers, I think,
21 being verified by anybody, I think that CNSC staff when
22 they've come and done visits to the facility have noted
23 that our staff is knowledgeable and competent in
24 performing their tasks and that's basically coming through
25 to the improvements that we made at the facility.

1 Same with our ISO Registrar or all the
2 other customers that audit our facility, the other
3 organization that audit our facility have never raised
4 qualifications as an issue for our facility.

5 So the staff that is used to train the
6 other staff is a staff at our higher level of competence
7 that have performed the training themselves, or basically
8 developed or initiated the procedure themselves, they
9 basically developed it from scratch, so they have intimate
10 knowledge of it.

11 Because let's remember, we are a very small
12 company and most of the people at our facility have an
13 average of experience of over 10 years and I think that
14 that's important to note. There's a lot of knowledge
15 that's received from intimate knowledge of various
16 capacity that they're doing.

17 If you see I've tried to capture that as
18 much as I could in the date start position and date end
19 position in Appendix C where I show how many years certain
20 individuals have performed tasks in various functions.

21 And all these staff have performed a number
22 of training, is recorded and noted for performing these
23 positions and they've all had over 10 years worth of
24 experience. I think that speaks for itself.

25 **MEMBER TOLGYESI:** I appreciate their

1 efforts and I appreciate what you are saying here; the
2 programs and procedures, what they were following, your
3 staff.

4 My question was only that, you know, when
5 you initiate a new program some issues develop and there
6 should be a kind of evaluation.

7 So what does staff have to comment on the
8 training and auditing performance?

9 **MR. ELDER:** Just a general answer on how we
10 approach the training at this type of facility which is a
11 very small facility.

12 We tend to actually not -- we look at that
13 they have a defined training program, the qualifications
14 are very clearly and then we actually then go -- we don't
15 look too much into the training program but go directly to
16 the people because on this type of facility you can do 100
17 percent sample and said "are these guys actually
18 qualified?", so we go and interview the people and say "do
19 they not -- have you done the training, but do you have
20 the knowledge you're supposed to have?"

21 So on this one and the key areas of
22 radiation protection, environmental protection, we
23 actually went and interviewed the people responsible and
24 concluded that they did have the appropriate knowledge
25 they needed.

1 Recognize these -- you know, in this type
2 of organization where they don't train very often it's a
3 more effective way to go actually see -- does the person
4 doing the job have the knowledge rather than in a bigger
5 organization you'd -- certainly you would concentrate on
6 the training program. In this one we can do essentially
7 100 percent sample, so that's what we do.

8 **MEMBER TOLGYESI:** Could you explain a
9 little bit on the page with -- here on the page 6 of the
10 staff presentation you are saying that the reclamation
11 unit is not used. What's the role of the reclamation
12 unit?

13 **MR. ELDER:** The reclamation unit had been
14 used in the past and I think there's been some discussion,
15 is actually to recover tritium from used -- in the
16 concentration of -- obviously tritium and assigned decays
17 over time so decreases with decay and the reclamation unit
18 was actually to recover the tritium was there so that you
19 could use it, put it together and built new signs out of
20 it.

21 And it -- we had some concerns about it,
22 the amount of releases from it. Our estimate was is not
23 that the dominant sources of the past releases but it
24 certainly was a contributor to it, about 10 to 15 percent,
25 at the previous level.

1 So if they used it now, how they had used
2 it in the past they would be well over their licence
3 limits, is basically our conclusion. So they are not
4 allowed to use it.

5 **MEMBER TOLGYESI:** So what's -- you do
6 recycling of tritium.

7 **MR. ELDER:** So in terms of what they do on
8 recycling -- on process is they actually take the signs
9 back. They dismantle the signs and actually the tritium
10 light tubes are sent to another licensed facility in South
11 Africa for the reprocessing.

12 **MEMBER TOLGYESI:** That was my question
13 because I was looking at you have a recall procedure but
14 no obligation to return. You a recall procedure but no
15 reclamation unit is working. So if you collect that, what
16 you do? You do not recycle. You do not reuse
17 specifically any tritium. You send it -- these tubes to
18 South Africa where they recover it.

19 **MR. LEVESQUE:** Stephane Levesque, for the
20 record.

21 In one of the written submissions, Section
22 3 called "Disposal of Expired Products", I think that we
23 try to capture there what we try to do.

24 If you look at Section 3.3, it's a process
25 once any tritium-activated self-luminous product is

1 received. And we state there that the packages are
2 opened, the product is inventoried, and then as the tubes
3 are used for illumination, the assessment for reuse is
4 mainly based on appearance and brightness of the tube.

5 So what we basically do is we take the
6 tubes out of the product. We assess their quality, and we
7 assess whether they can be reused for another type of
8 application that may require a different type of
9 brightness level. So we do take a large number of tubes
10 and reuse them for other applications.

11 And other tubes -- yes, we dispose of
12 to either a licensed waste facility, AECL, or a company in
13 South Africa who have their own reclamation activities.

14 **MEMBER TOLGYESI:** You don't use them in the
15 landfill or anything like that?

16 **MR. LEVESQUE:** Stephane Levesque for the
17 record.

18 Definitely not. They would not quantify
19 under the -- I think -- the exemptions under the new
20 regulations.

21 **MEMBER TOLGYESI:** So how do you explain
22 that there was some barrels where it was a high tritium
23 concentrate which was sent to -- I think it was the
24 landfill, those 200 litre barrels?

25 **MR. LEVESQUE:** Stephane Levesque for the

1 record.

2 I'd like to redefine "high" because the
3 regulations allow for concentrations in these drums for
4 disposal to landfill of 1 MBq per gram. We were less --
5 the concentration within those drums were less than 1
6 percent of that concentration.

7 Now those -- what we deem as very low-level
8 concentrations came from shoe covers, gloves, working in
9 the non-active areas, basically garbage, just regular
10 garbage from being exposed to a little bit of tritium from
11 our processing coming into our work areas. And that's all
12 we're dealing with.

13 But there again, well below the exemption
14 quantities as regulations at very low levels, and nothing
15 to do with disposing of actual light sources or product.
16 That's done through a licensed waste facility or reused.

17 **MEMBER TOLGYESI:** I'm lost -- I'm going
18 back to the staff presentation and the simulation or
19 modeling of groundwater movement.

20 When you are saying you developed a formula
21 and "D" as the water depth, it's a water column in the
22 hole, in the well between the bedrock and the water table?

23 **MR. LEI:** Shizhong Lei. That's correct,
24 yes. It represents the water depth from the bottom of the
25 well and most of the wells are drilled to the top of the

1 bedrock.

2 **MEMBER TOLGYESI:** Okay, and when you are
3 looking -- there is a factor for media porosity and
4 conductivity. These are -- these could be specific to
5 each hole.

6 **MR. LEI:** The hydraulic conductivity
7 numbers were obtained by SRB which are for the horizontal
8 hydraulic conductivity. Some of the parameters like the
9 depth, hydraulic conductivity and the hydraulic gradient
10 were measured parameters. So the vertical flow velocity
11 and the porosity are actually obtained through calibration
12 because those numbers are very difficult to measure.

13 **MEMBER TOLGYESI:** And my last, Mr.
14 President, is when you're looking at these pictures on
15 page 14, 15, they were all monitoring wells when you were
16 predicting: What's the level of tritium?

17 Did you do that for some wells which
18 are in residential area or did you do that for all holes
19 or all wells, or only for monitoring wells?

20 **MR. LEI:** Shizhong Lei. We didn't do the
21 modeling for the residential wells because we needed the
22 soil sample data and the conditions of the wells for the
23 residential wells, we don't know anything. There's no
24 data -- for example, how deep the wells are and there's no
25 sample of the soil concentrations.

1 The predictiona we give in the CMD are
2 those -- for those wells that have soil sample data and
3 also those are the ones that have relatively high
4 concentration of tritium.

5 I also would like to add something to our
6 response to Dr. Barnes regarding those graphs. Dr. Barnes
7 was asking about the dots that insert in the figures.
8 Those are actually -- those are the samples of groundwater
9 concentration and the depth. So they are provided there
10 too as a comparison -- how they compared to the
11 concentration in the soil water.

12 **THE CHAIRMAN:** Thank you.

13 Dr. Barriault.

14 **MEMBER BARRIAULT:** Merci, Monsieur le
15 Président.

16 First of all, I'd like to thank the --
17 thank you for the information on the Occupational Health
18 and Conservation Program and also on your occupational
19 health reports form the committee.

20 My first question really is to our staff.
21 Historically from previous meetings we've asked for a
22 description of the plume and I don't see it.

23 And what I'm hearing really is that,
24 "We really can't give a description of this plume because
25 we don't have enough monitoring wells to do that". Is

1 that correct?

2 **MR. RINKER:** Mike Rinker for the record.

3 We were trying to frame our response in Day
4 One to say that based on the data we have and the fact
5 that we're really working on a micro-scale using off-the-
6 shelf codes to help us describe a plume wouldn't be
7 possible.

8 So we've -- and with that in addition
9 -- there on Figure 2 it looks like there's a number of
10 monitoring wells and there are a lot. They're not all to
11 the same depth that one could use to contour a plume or to
12 provide sort of like a 3-D representation.

13 So as an alternative, we've used what data
14 we had to describe how we would expect concentrations of
15 tritium to evolve over time with the addition of a
16 schematic to aid in our explanation of what our
17 interpretation of that means.

18 Because the risk to the environment and to
19 people of the operation of this facility is low, we did
20 not think it would warrant going out and spending a lot of
21 money on capturing a lot of other drill cores and drill
22 samples.

23 **MEMBER BARRIAULT:** I guess my next
24 question, if I may, is it possible that this plume is in
25 an area where you cannot sample or have not sampled -- in

1 other words, as it moved away from your testing wells?

2 **MR. LEI:** Shizhong Lei. From Figure 2 on
3 page 9 of this CNSC staff's CMD, we put -- we just put all
4 those numbers there.

5 As you can see if there's a plume it should
6 be very -- like we think within about 500 metres away from
7 SRB facility. Although there are lots of number of wells
8 to give us total contours of the plume, from the figures
9 we presented there we can see roughly an idea of the range
10 of this contamination.

11 **MEMBER BARRIAULT:** So, go ahead.

12 **MR. ELDER:** Just to add I think some of
13 this discussion came out if you look in our original CMD
14 10-H5, page 41. There is a contour of the water flow, so
15 we do have enough information to identify the water flow
16 direction and their wells along that flow path.

17 Why we were on the plume as we've done in
18 that illustrative diagram is that it's really three-
19 dimensional. It's not only going -- you know once it --
20 if there's a slow process to get to into the water table
21 and the groundwater and then it moves laterally after
22 that. And that's why we were hesitant at first to
23 predict, to have a plume calculation because it's a very
24 complex thing that's happening on a very small scale. I
25 mean this is not a big volume.

1 While the concentrations may appear in
2 places to be high, the actual volume of water is
3 relatively low.

4 So we're trying to present it in different
5 ways but there is good evidence on which way the water in
6 that groundwater is flowing and there are appropriate
7 watering wells on that one.

8 **MEMBER BARRIAULT:** So what I'm hearing then
9 that you're comfortable that you have a handle on the
10 size, shape, and scope of this plume?

11 **MR. LEI:** Yes, we have a rough idea how the
12 drains of the contamination which is still very limited
13 and very still close to the facility. And they are wells
14 around the facility that will give us updated monitoring
15 data to see whether it's going -- like how far they're
16 going.

17 **MEMBER BARRIAULT:** I don't want to belabour
18 the point but you're telling that you have a rough idea,
19 that you have a specific idea whether you know the size of
20 this plume?

21 **MR. LEI:** From the parts of the data we can
22 see they are within 500 metres from the facility
23 horizontally.

24 **MR. RINKER:** If I could add, we have a
25 solid understanding of where this plume is located and

1 what direction it's moving to. We know it's moving -- it
2 is not moving towards the residential wells which there
3 would be some concern.

4 So to suggest that do we know where the
5 boundary is, is it 400 metres or 420 metres away, we don't
6 know to that sort of precision but we know that it's not
7 moving towards any areas that we would be concerned about.

8 **MEMBER BARRIAULT:** You mentioned that it's
9 moving towards Muskrat River. Is it moving lower than the
10 river? In other words will it eventually be draining in
11 the river or is it just going to undershoot this river and
12 proceed along the same lines?

13 **MR. RINKER:** Mike Rinker, for the record.

14 In general groundwater flows towards an
15 area of discharge which would be the river in this case.
16 So it's our expectation that groundwater from the SRB
17 facility would reach Muskrat River and not go underneath
18 it.

19 **MEMBER BARRIAULT:** Thank you.

20 My next question; most of the predictions
21 are based on stack emissions remaining at the same level
22 or less. In eventuality that -- the production of the
23 plant increases which we wish them success, what happens
24 to the stack emissions? Are they locked in at this level
25 or is there a possibility that they will increase?

1 **MR. ELDER:** I'll answer this in general.
2 Most of the predictions you're seeing are actually based
3 on emissions that are well above their licence, current
4 licence limits.

5 So while they could release -- increase,
6 there is only so much they can release before they run up
7 into that limit. And like any emissions we ensure that
8 their action levels and we start asking questions when we
9 start seeing emissions increase.

10 So there are much more stricter -- as I
11 said at the beginning of the presentation, there are much
12 more stricter limits on the facility, on the emissions
13 than there were in the past that will contain and were
14 designed and set to contain -- you know, to make sure that
15 they didn't add to the problem that they had created in
16 the past.

17 **MEMBER BARRIAULT:** That's fine, Mr.
18 Chairman. Thank you.

19 **THE CHAIRMAN:** Okay. I think it's a good
20 time to take a -- sorry, Mr. Levesque.

21 **MR. LEVESQUE:** I'm sorry to interrupt, if I
22 could just add something before we go for break? I'm real
23 sorry to interrupt. I think it's important.

24 I think that to answer a question that you
25 said, I think I should note that despite plan increases in

1 production, we've projected -- given you projections for
2 the next five years and we projected decreasing emissions
3 every year. And those are despite plan increases in
4 production that we've planned.

5 Another thing, regarding the groundwater
6 and how much of a good idea we have, we have a very good
7 idea. I think it's important to note that we have a
8 network of wells that exist right now. We've drilled nine
9 wells that were in soil, 17 that were at the surface, the
10 bedrock, seven that were deep in bedrock and four that
11 were in shallow bedrock.

12 So on all different types of ideological
13 zones we have a network of wells that gives us
14 concentration, that gives us rate of speed of groundwater
15 and that we've determined the direction of groundwater
16 which, again, as CNSC staff stated, is away from the
17 residential area and towards the Muskrat River.

18 I think -- it's also my last point. It's
19 important to note why a lot of residential wells were far
20 away from the facility cannot be predicted exactly much
21 like RW-8 that we were discussing about earlier near the
22 facility, is that this process that happens when you drill
23 a well, we were permitted when we did the monitoring
24 wells, we basically have to do what's called a recovery
25 test which is to empty those wells and see how fast the

1 water recovers and allows us to determine how fast those
2 wells will respond to emissions of the past.

3 And with all those residential wells we
4 have none of that data. We don't know how they were
5 screened. We don't know how the fast they recover. We
6 don't know the soil composition. So it's impossible for
7 us to determine how fast they respond. That's why we're
8 left with something like we are with RW-8, 9 and 10.

9 That's all I had. Thank you.

10 **THE CHAIRMAN:** Thank you.

11 I think it's a good time to take a break.
12 We'll reconvene at 11:20.

13 Thank you.

14 --- Upon recessing at 11:07 a.m.

15 --- Upon resuming at 11:24 a.m.

16 **THE CHAIRMAN:** Okay. We are now into the
17 round for the interventions.

18 So just to repeat what I said before the
19 break, that we will hear the intervenors and then we'll
20 have the second round for the Commissioners to kind of
21 summarize the questions.

22 So I would like to remind everybody that
23 we've allocated 10 minutes for the oral presentations and
24 I would appreciate that you stick to this. After that,
25 there are going to be some discussions.

1 renewal sought by SRB should not be approved. The reasons
2 are set out in somewhat painful detail in our submissions
3 dated April 19th, February 17th, and May 12th of this year.

4 In the time that's allotted to me this
5 morning I'd like to go over the highlights of the
6 submission that caused CCRC to take this position and then
7 I would like to make two requests of the Commission at the
8 close of my comments.

9 My first point is with respect to tritium
10 lights. They are and do continue to cause landfill
11 pollution locally, domestically and internationally and
12 this is no mere soft pollution problem. This is
13 contamination by deadly ionizing radiation for which some
14 members of the medical community believe the only safe
15 dose is zero. And in that regard you have a submission
16 from Dr. Linda Harvey who will be speaking to that point
17 later this morning.

18 The CNSC, in my respectful submission,
19 should not be relicensing a facility such as SRB's that
20 manufactures, predominantly for export, light sources
21 using tritium because there is a direct connection between
22 that relicensing and the worldwide landfill pollution
23 problem caused by tritium.

24 My second point is that SRB has not been
25 successful in avoiding contamination of groundwater and

1 drinking water in the Pembroke area due to its operations.
2 It has created a legacy problem for the Pembroke community
3 that is ongoing.

4 The company cannot meet the already
5 outdated Canadian drinking water guideline of 7,000
6 becquerels per litre and it certainly will not meet the
7 proposed new Ontario drinking water standard of 20
8 becquerels per litre.

9 For the CNSC to re-license SRB in the face
10 of these facts is to turn a blind eye to the limitations
11 of this company's ability to comply with the law,
12 limitations that have been apparent for years.

13 My third point is that models for assessing
14 tritium risk to humans and the environment need to be more
15 robust as do the inputs to those models. It is simply not
16 a question of better risk communication. Any risk model
17 that relies on the 7,000 becquerel per litre Canadian
18 guideline for drinking water is out of date or soon will
19 be.

20 If CNSC is assessing the SRB application on
21 the basis of less than robust models and inputs, the
22 company is getting off easy and the public is not being
23 well served.

24 My fourth point is that cost recovery and
25 decommissioning arrears and low-ball estimates -- cost

1 estimates need to be but have not been adequately
2 evaluated. To the extent that the decommissioning escrow
3 account is reality not reflecting true decommissioning
4 costs, SRB is getting a break and the public is being
5 short-changed.

6 My fifth point is the proposed revision to
7 the third-party monitoring requirement -- I believe that's
8 known as Condition 10.1 -- introduces ambiguity where
9 there is currently clarity and is a recipe for resulting
10 compliance and enforcement of problems, and my written
11 submissions go into that in somewhat greater detail.

12 My sixth point is that there are a litany
13 of waste management problems associated with the SRB
14 operation that we catalogued in our main submission and
15 also in our supplementary submissions that all of them by
16 themselves should be enough to disqualify SRB from
17 obtaining a licence renewal.

18 In summary, Mr. Chairman, the issues
19 addressed in these submissions individually and
20 collectively raise sufficient doubt about the advisability
21 of granting SRB the licence renewal it has requested. And
22 for the foregoing reasons, CCRC respectfully requests that
23 the Commission refuse to grant the requested licence
24 renewal.

25 Now, that was my first request. My second

1 request relates to a letter that I received yesterday from
2 SRB dated -- but however it's dated May 4th and it
3 purports to be a response to our April 19th submissions.

4 I'm requesting that the Commission,
5 pursuant to Rule 20(3), keep the hearing record for this
6 matter open for 10 days and allow CCRC to file a written
7 response to that letter of SRB's, which is, as I said a
8 moment ago, dated May 4th but only received by my office
9 yesterday, May 18th.

10 Subject to any questions you may have,
11 those are my submissions.

12 **THE CHAIRMAN:** Let me raise this; is there
13 anything in this particular letter that is new information
14 that you just didn't cover in your six or seven points?

15 **MR. CASTRILLI:** My six or seven points were
16 drafted before I knew of the existence of the SRB letter.
17 I didn't modify the submission for the purposes of this
18 morning.

19 **THE CHAIRMAN:** But does the letter raise
20 new issues that you cannot deal -- we can't deal with
21 right now?

22 **MR. CASTRILLI:** It appears to do so and if
23 I were to go through the SRB letter, I would be here a lot
24 longer than 10 minutes.

25 **THE CHAIRMAN:** Okay. Well, we'll get back

1 to you on this.

2 **MR. CASTRILLI:** Thank you, sir.

3 **THE CHAIRMAN:** Okay. The floor is -- let's
4 start -- I don't know. Let's start with questions,
5 please.

6 Mr. Graham?

7 **MEMBER GRAHAM:** Yes. My first question is
8 to CNSC staff.

9 In the presentation H5.2B, the intervenor
10 states that the changes made to the regulations would
11 clearly reduce SRB's waste management costs while
12 increasing environmental risks.

13 When those new regs were brought in -- I
14 believe in 2008, I believe they were -- my understanding
15 was they were quite strict and also were to the extent
16 that they were clarifying and tightening up some of the
17 items that were ambiguous at the time.

18 Would CNSC staff like to comment on the new
19 regs, on those regs, and have there -- is that statement
20 then correct or not?

21 **MR. ELDER:** I'll start at the high-level
22 end and see if you want more details on that one.

23 There are two reasons for the changes to
24 the regs: one is to bring in the exemption levels that
25 were consistent with conservative models developed by

1 European Commission for Radiation Protection and aligning
2 with International Atomic Energy clearance levels as well.

3 There was also -- so there was a lot of
4 analysis done both in Canada and internationally to make
5 sure that those levels do not pose hazards to human health
6 or the environment.

7 The second one is actually -- was to look
8 to make sure that there was not a conflict between our
9 series of regulations. There could be a perceived
10 conflict in what was in our Nuclear Substance Radiation
11 Regulations and in our Transport and Packaging
12 Regulations.

13 So it was to make sure that we were aligned
14 in both regulations with IAEA, what's called the basic
15 safety standards, exemption levels.

16 So that was really the driving force to
17 make sure that we're consistently international with
18 international practices. It was not delivered in any
19 particular driving force in terms of saving costs to the
20 industry or it's making sure that we are regulating in a
21 consistent manner with international levels.

22 **MEMBER GRAHAM:** The question though was
23 asked was that if the new regulations will increase
24 environmental risks and I guess my question was, in
25 following these new guidelines and so on, have you -- is

1 there a deviation from the old rules that would increase
2 environmental risks with the new regulations?

3 **MR. RINKER:** Mike Rinker, for the record.

4 I think in response to that question, in
5 general, we would say the answer is no. Indeed, it
6 provides more clarity and we're adopting some strict
7 standards on some specific exemption quantities where we
8 didn't have consideration of what would be the safe value
9 before. So now we have aligned with international values
10 for exemption quantities and those values are safe.

11 **MEMBER GRAHAM:** Thank you.

12 With regard to a couple other points that
13 the intervenor brought up with regard to decommissioning,
14 I asked that earlier this morning and I believe you're
15 back next year with the new review?

16 And also with regard to disposal into
17 landfills and so on, is there anything else you want to
18 add to that from what we had discussed earlier when the --
19 earlier this morning?

20 **MR. ELDER:** Just that to point out the
21 review; well, SRBT submitted their current decommissioning
22 plan and associated cost estimates in 2006. We did a
23 thorough review of those and actually required them to
24 update, to redo their cost estimates for 2007 and where
25 the five year rule is in general where we don't see when

1 we'll have no evidence of there being major lapses in
2 their decommissioning plans and we have looked to
3 operation of that facility, in our opinion, is there is
4 not any major changes in operation since -- in the style
5 of operations and what needed to be decommissioned since
6 2006 that would lead to a major change in the financial
7 guarantees.

8 I also point out that all financial
9 guarantees have a contingency built into them and third
10 point is that one of the things we did ensure in terms of
11 the payment scheme is that the basic amount that when they
12 started from was sufficient to put the plant into a safe
13 shutdown state. So the money is already and always been
14 available for safe shutdown.

15 What we're doing now is routine and this is
16 how we have done other financial guarantees when we
17 introduced them is allowing a period of time for the
18 licensee to build up an escrow account or whatever the
19 mechanism is for the financial guarantees.

20 I should point out this is not -- the
21 financial guarantee situation is not unique to SRBT.

22 **THE CHAIRMAN:** Just to pursue this further,
23 the intervenor made a hypothetical situation that you have
24 to -- City of Pembroke will have to replace 150 metres of
25 sewer line. I mean I'm just trying to understand whether

1 that's even within the kind of parameters that any
2 decommissioning would be -- in other words, how you
3 determine what is the decommissioning scope?

4 **MR. ELDER:** So the decommissioning scope
5 looks at returning the facility and cleaning up the
6 facility and the site around it -- in terms of the sewer
7 as we discussed before, the limits on the sewer -- the
8 releases through the sewer -- are already based on making
9 sure that the amount they can allow to put in a sewer do
10 not pose a health or environmental risk.

11 So we'd not see that there would be a need
12 to clean up into the sewer because they're supposed to --
13 they're not allowed to discharge significant quantities to
14 the sewer and those limits in their licence are based to
15 make sure that they do not -- make sure discharges to the
16 sewer remain safe.

17 **THE CHAIRMAN:** Thank you. Monsieur Harvey?

18 **MEMBER HARVEY:** On just to touch that
19 point, despite the fact that you -- the thing is just so
20 low level that the soil could not be contaminated -- are
21 you going to take any data in that soil or are you just
22 analyzing the water, getting out of it?

23 **MR. ELDER:** We, from a staff perspective do
24 not have a requirement that they analyze the water in the
25 sewer. We do require them to analyze every single batch

1 they put into the sewer so we know exactly what goes in.

2 **MEMBER HARVEY:** So nothing would be done to

3 ---

4 **MR. ELDER:** Nothing, no -- because they
5 don't release it until they confirm that it's within the
6 release limits.

7 **MEMBER HARVEY:** But I mean nothing would be
8 -- no data will be taken in the sewer itself to -- if
9 there could be any -- where deposit or accumulation of
10 tritium that's your -- is it possible or impossible?

11 **MR. ELDER:** There have been some
12 measurements done in the past and I think someone brought
13 them up. Certainly the levels have been measured in --
14 especially as measured not in drinking water and sewer
15 sludge certainly do not -- they would not pose a health
16 risk in drinking water -- they certainly do not pose a
17 health risk in sewer sludge.

18 **MEMBER HARVEY:** Thank you. At page 6 of
19 the concerned citizen for submission, they touch the third
20 party monitoring saying that the current licence condition
21 -- you will modify the current Licence Condition 10.1 and
22 that modification could not be a release or downgrading
23 the obligation. Could you comment on that?

24 **MR. ELDER:** Sure. This is in terms of the
25 third party monitoring. Again whether it's a condition of

1 licence or in the Licence Condition Handbook -- first our
2 perspective from a compliance perspective, it doesn't make
3 any difference to us. The Handbook and the licence are
4 what we measure compliance against.

5 We have a range of enforcement actions.
6 They're not all based on the licence, they're also based
7 on the Act, the regulations as well so that it's not that
8 everything has to be strictly in the licence.

9 The reason that we looked at putting in the
10 Handbook is frankly we considered this -- we didn't want
11 to make sure there was a barrier to SRB improving
12 themselves. This is a less than -- they are in some cases
13 -- a less than ideal situation that they are not qualified
14 to do this themselves and we would like them to not be
15 able to hide behind a licence condition and say, "Oh, I
16 don't need to improve because my licence condition says
17 I'm not allowed to do it."

18 We would prefer that they continue to try
19 to improve and improve their qualifications.

20 Until they can prove to us that they have a
21 qualified program and can do this adequately and properly
22 themselves, we will continue to ensure that it is done by
23 a competent third party.

24 **MEMBER HARVEY:** Thank you. This question
25 is addressed to the citizen -- concerned citizen. On page

1 3 of your submission, you mentioned that the elevated
2 levels of radioactive tritium in groundwater have been
3 found at the municipal dump serving Pembroke. Could you
4 just elaborate a bit on that? What type of data you've
5 got from who?

6 **MR. CASTRILLI:** I have with me Kelly
7 O'Grady who's a member of the CCRC and I think is probably
8 better qualified to respond to that particular question,
9 with your indulgence.

10 **MEMBER HARVEY:** Yes.

11 **MS. O'GRADY:** A couple of years ago we
12 asked for the Ministry of Environment to investigate
13 tritium levels in the leachate of the landfill that's in
14 the Allison Fraser Waste Site which services our area and
15 they get a few grab samples and they found one well that
16 had a thousand becquerels of tritium per litre in it.

17 We wanted more extensive testing of that.
18 We thought that was a good indication that tritium is
19 getting into landfill sites but we weren't successful in
20 getting that and in my submission later on I'm going to be
21 asking for that type of study.

22 **MEMBER HARVEY:** Were you aware of those and
23 would that for you cause any problem?

24 **MR. ELDER:** Well sure. We'll ask Dr. Mihok
25 to answer this question.

1 **DR. MIHOK:** Steve Mihok speaking.

2 Yes we're very much aware of this and we've
3 looked at the documentation several years ago. The
4 documentation also included a letter from the Ministry of
5 the Environment in Ontario. They had no concerns over
6 what was measured.

7 Essentially those sorts of levels are
8 expected from the work that has been done in the USA and
9 in the UK looking at tritium in landfills. People don't
10 obviously know the exact source. It maybe expired tritium
11 lights; it may be other sources, but when people do go to
12 landfills, they find levels up to about maybe three or
13 4,000 becquerels per litre of tritium.

14 **MEMBER HARVEY:** Thank you.

15 **MR. LEVESQUE:** Excuse me.

16 **THE CHAIRMAN:** Monsieur Levesque?

17 **MR. LEVESQUE:** Stephane Levesque for the
18 record.

19 I'd just like that little bit of
20 information the Ministry of the Environment added that was
21 conducted. I actually have it with me today.

22 The Ministry of the Environment, the report
23 dated November 28, 2007 reported measurements that were
24 done in six locations and the results range between 9.5 to
25 1,000 becquerels per litre as Miss O'Grady reported and in

1 the conclusion, Mr. Robert Holland stated that based on
2 these results they do not see a need to conduct a more
3 intensive survey at this site and I can make that
4 available for the Commission if they'd like.

5 **THE CHAIRMAN:** Thank you. Other questions?
6 Ah, sorry. Dr. Barnes?

7 **MEMBER BARNES:** You raised the issue of
8 tritium in landfill particularly on page 3 and you
9 referred to South Africa. I just want to take -- link it
10 back to a point that Mr. Levesque made and maybe ask Mr.
11 Levesque and staff to respond.

12 When you send the tubes for so-called
13 reprocessing to South Africa is that done under safe
14 conditions? Are there any problem with their landfill
15 situations or health effects for the workers that are
16 doing that work? Are you aware of that? Are we basically
17 exporting a problem here?

18 **MR. LEVESQUE:** Stephane Levesque for the
19 record.

20 From what I understand, the facility is
21 licensed by their regulatory body in South Africa.
22 They're in good standing with the regulatory body. We've
23 heard of no issues with the process of recycling the
24 tritium from the light sources.

25 **MEMBER BARNES:** Staff? Any comment?

1 **MR. ELDER:** The only comment in terms of --
2 we did as one of the specific tritium studies one that --
3 its report on the technology and what was being done. We
4 did actually -- one of our experts did actually visit the
5 facility in South Africa and looked at, you know, how they
6 were running the reclamation unit and that and it
7 certainly seemed to be a very modern piece of equipment
8 that would not pose a problem itself.

9 We did not actually look at then the waste
10 aspects beyond that facility. But the facility itself is
11 certainly equivalent to what you would find in Canada.

12 **MEMBER BARNES:** Okay, thank you.

13 **THE CHAIRMAN:** To follow up on this, what
14 doesn't compute in my mind here is coming back to the Wal-
15 Mart story. It states here that the U.S. prohibits
16 sending this stuff to landfill but I also understand that
17 the U.S. doesn't regulate it. In other words, they did
18 not care what Wal-Mart did with their signs.

19 So is there something I don't understand
20 here? Staff?

21 **MR. ELDER:** I think what you've got is --
22 this is a recent development in the States in reaction to
23 what happened with the situation with Wal-Mart where I
24 don't think they put them in landfill as Wal-Mart could
25 not account for a large number of signs.

1 They have put into -- as of January 2009 --
2 saying that all these signs should be returned to a
3 licensee a someone who is licensed by the U.S. Nuclear
4 Regulatory Commission.

5 We're looking into this one because the
6 possessor of the sign is not required to have a licence so
7 it's obligation -- we're wondering how they would do
8 monitoring enforcement of such a requirement where anybody
9 can go buy one and you have a future obligation to do
10 something about it. So we are actually looking at and
11 seeing how the U.S. will be able to enforce such a
12 requirement.

13 **THE CHAIRMAN:** Thank you.

14 Dr. Barriault?

15 **MEMBER BARRIAULT:** Merci, Monsieur le
16 Président.

17 On page 7 of the presentation it goes on to
18 state that under crushed glass waste and other waste
19 management concerns, on December 21st of last year you
20 sent 23 - 200 litre drums containing 8.26 gigabecquerels
21 of Hydrogen-3. Do you want to comment on that, SRB?

22 **MR. LEVESQUE:** Stephane Levesque for the
23 record.

24 Thank you for the question. The barrels
25 that we sent to a landfill did not contain any crushed

1 glass. Again they just contained, as we said, shoe
2 covers, gloves or waste from a non-active -- from a Zone 2
3 area -- not the zone where we're processing tritium.

4 And the -- as I responded to Mr.
5 Castrilli in the letter and in the letter, by the way,
6 I've included essentially no new information. All the
7 documents and information I have there is some public
8 information that I've gathered from all our submissions
9 that were on the website or been submitted to the public
10 in the past so there's nothing new.

11 The disposal of these barrels was within
12 the regulation. The concentration, again, was less than
13 one per cent of the concentration required under the
14 regulations.

15 **MEMBER BARRIAULT:** Thank you. The CNSC
16 care to comment on this? Was this monitored?

17 **MS. ERDMAN:** Ann Erdman.

18 The nuclear safety -- the *Nuclear*
19 *Substances and Radiation Devices Regulation* lays out the
20 exemption limits and it's either the average concentration
21 has to remain below one megabecquerel per gram or the
22 total activity is less than one gigabecquerel. In SRBT's
23 case, the average concentration is below -- was below one
24 megabecquerel per gram. So it's an "or"; it's not just
25 the gigabecquerel -- the one gigabecquerel -- it's the

1 "or" as well and their waste was below one megabecquerel
2 per gram.

3 **MEMBER BARRIAULT:** So it's an average?
4 Were there any that were actually higher, obviously, than
5 the average? Was there anything in the vicinity of eight?

6 The comment made in this document states
7 that it contained 8.26 total and was that one barrel or
8 was that the total disposal?

9 **MR. LEVESQUE:** Stephane Levesque for the
10 record.

11 That's what they're referring to is the
12 eight. That's the total disposal of all the barrels added
13 up together.

14 **MEMBER BARRIAULT:** So not just the one
15 barrel?

16 **MR. LEVESQUE:** Exactly.

17 **MEMBER BARRIAULT:** Okay and the regulation
18 states that average one?

19 **MS. ERDMAN:** Ann Erdman.

20 That the concentration remains below one
21 megabecquerel per gram or the total tritium activity is
22 less than one gigabecquerel. The other thing is that the
23 total must be less than 1,000 kilogram of material per
24 year per facility.

25 **MEMBER BARRIAULT:** So I guess my question

1 is were they within regulations?

2 **MS. ERDMAN:** Yes they were.

3 **MEMBER BARRIAULT:** Thank you.

4 **THE CHAIRMAN:** Mr. Tolgyesi?

5 **MEMBER TOLGYESI:** On the presentation on
6 page two, Mr. Castrilli is saying the Commission tritium
7 risk models are out of date. Do you have any comments,
8 staff, to this?

9 **MR. ELDER:** I'll ask Kevin Bundy to respond
10 to that in terms of the radiation detection models.

11 **MR. BUNDY:** Kevin Bundy of the Radiation,
12 Health and Science Division.

13 I'm not quite sure what they mean by which
14 models but our models are based on the ICRP
15 recommendations and they have a number of dosimetry models
16 that are continually being updated and modified and
17 modernized as more evidence or more scientific evidence
18 comes to place.

19 I could maybe suggest Bert Thériault who is
20 our -- if that was the model that we're talking about then
21 I can maybe suggest Bert Thériault would address that?
22 He's our internal dosimetrist.

23 **THE CHAIRMAN:** Go ahead.

24 **MR. THÉRIAULT:** In terms of the risk models
25 it wasn't very clear to us what risk models exactly were

1 in question here. In terms of -- if we have to do with
2 the 7,000 becquerel per litre number, these are based on -
3 - this is based on the .1 millisieverts per year.

4 However the models we use to assess the
5 dose are based on ICRP recommendations. However most
6 licensees such as SRB do assess those to the public, for
7 example, in their Derived Release Limits use models
8 developed by the Canadian Standard Association, Document
9 CSA N288.1, which use a dose coefficient for treated water
10 of which is 10 per cent more conservative than the ICRP
11 number.

12 So it's a little more conservative than the
13 ICRP recommendation. I don't know if that answers the
14 question.

15 **THE CHAIRMAN:** Let me be a bit clearer. At
16 the international committee, we have a table here with all
17 the international communities showing that everybody is
18 around 7,000 becquerel; Americans are at 700. Is all the
19 international community going to adopt 20 becquerel per
20 litre? What's your assessment of all of this?

21 Is it everybody's following or is it our --
22 is Ontario looking at this as something that -- to use a
23 precautionary approach if the industry can actually meet
24 this low level, why not make it as a guide?

25 Did I get this right or not?

1 **MR. RINKER:** Mike Rinker for the record.

2 Your last part of the question -- did you
3 get this right -- the answer is correct, yes you did.

4 In general, the Health Canada guideline
5 value of 7,000 becquerels per litre represents 10 per cent
6 of the public dose limit of one millisievert per annum so
7 that means it represents .1 millisieverts per annum.

8 Internationally and in Canada that is
9 considered as a very safe value. It's selected as ten --
10 one tenth of the one millisievert per annum because people
11 may receive doses other than drinking water so that's the
12 reason why it's .1 millisieverts per annum.

13 However, the way internationally and Canada
14 implement radiation protection is meet guideline or
15 standard -- or certainly one millisievert per annum -- but
16 then implement ALARA, keeping releases as low as
17 reasonably achievable.

18 In the case of SRB a few years ago we
19 thought that approach was not being met and that the
20 environment was not being protected. In particular, the
21 sustainability of groundwater as a future resource -- if
22 sustainable development was not being protected adequately
23 enough we did not think at the time that human health was
24 at risk because the values for drinking water were well
25 below 7,000 becquerels per litre.

1 The Province of Ontario takes a similar
2 approach where they look at what do they feel industry
3 could meet that would, under the guidance of -- certainly
4 for the protection of human health but also sustainable
5 development. And they've done a review and they've taken
6 a policy decision of, for the protection of people, one in
7 a million lifetime risk is a goal that decided to meet and
8 that's where that 20 becquerels per litre came from.

9 It's not the approach that the
10 international community is taking for radiation protection
11 which would be around anywhere around 7,000 or higher;
12 like Australia is taking 70,000 becquerels per litre.

13 **THE CHAIRMAN:** Just so I'm trying to
14 summarize it in language I can understand -- you're
15 position is that 7,000 becquerels per litre is safe but if
16 you can actually manage to lower that to 20, why not?

17 Is that really what our position is?

18 **MR. RINKER:** Essentially that's the
19 position and that's how we've consistently regulated in
20 terms of -- especially when it's with that one. You don't
21 run up to the limit in everything so why don't you -- you
22 apply the ALARA principle, the lowest reasonably
23 achievable in all these doses to make sure that you're,
24 you know -- you keep them as low as possible.

25 And the example would be even though that

1 the standard in Ontario has been at 7,000 for a number of
2 years, the actual measurements you get in drinking water
3 in Ontario is less than 20. And you can see, in terms of
4 what Ontario said, if you can achieve it, why don't you
5 continue to achieve it?

6 We tend to approach the saying we push them
7 to always go as low as possible and we think we're getting
8 equivalent level of protection.

9 **THE CHAIRMAN:** Thank you.

10 Other question?

11 **MEMBER TOLGYESI:** I have just one more to
12 Mr. Castrilli.

13 On your page 2 you are saying that based on
14 the past performance of SRB, the proposed licence duration
15 of five years is too long.

16 What do you mean; four years will be okay?

17 **MR. CASTRILLI:** No, our position is no
18 years would be okay. We're not recommending renewal of
19 the licence.

20 **MEMBER TOLGYESI:** Okay, so it's not too
21 long. It should be just disregarded.

22 **MR. CASTRILLI:** It should not be continued.

23 Sir, Mr. Chairman, I wonder if I could
24 respond to the last comment of -- I believe it's Mr.
25 Elder, regarding -- in response to your question that he

1 believes ---

2 **THE CHAIRMAN:** Go ahead.

3 **MR. CASTRILLI:** --- 7,000 Becquerels is
4 safe?

5 I have the Commission staff's PowerPoint
6 presentation from this morning and I'm looking at page 12
7 which sets out limits for tritium in drinking water for
8 various jurisdictions and that includes the Canadian
9 guideline of 7,000 Becquerels per litre.

10 And I'm looking at the -- there's two
11 different numbers on this page. The United States
12 standard which is a standard, by the way, which means it's
13 legally enforceable as opposed to simply a guideline which
14 means it's not legally enforceable.

15 And the U.S. standard is roughly 10 times
16 lower than the Canadian standard and I'm wondering if,
17 through you, Mr. Chairman, the Commission's staff could
18 respond as to whether the Americans are being too generous
19 or whether the Americans believe only 740 Becquerels per
20 litre is what constitutes safety with respect to tritium.

21 **THE CHAIRMAN:** Staff?

22 **MR. ELDER:** I'll ask Dr. Mihok to answer
23 that.

24 **DR. MIHOK:** Steve Mihok.

25 Yes, I think we have discussed this many

1 times in the past and it's an awkward discussion. The
2 Americans stand out as being different and they have been
3 different for a long time.

4 The reasons they have a lower standard,
5 which is 740 Becquerels per litre historical, it's a
6 standard that was based on essentially older models of
7 human physiology and so on from 1976.

8 When these issues were reviewed several
9 years ago, they were proposing a much higher standard and
10 it was essentially a risk management decision to keep the
11 lower standard in the U.S. since it had served its purpose
12 and it's basically not based on modern science.

13 The rest of the world is more or less in
14 line with the World Health Organization, the ICRP, with
15 numbers in most developed countries at least around 7,000
16 Becquerels per litre.

17 **THE CHAIRMAN:** You want to counter that?

18 **MR. CASTRILLI:** Well, the notion that it's
19 safer to go higher when you're dealing with ionizing
20 radiation strikes me as ridiculous, but if that's the
21 position of Commission staff, that's the position of
22 Commission staff.

23 My submission to you is that you not adopt
24 Commission staff's position.

25 **THE CHAIRMAN:** I thought I heard the

1 Commission staff saying that we'll try to go as low as
2 possible and the bottom line in Pembroke drinking water is
3 five Becquerels per litre; so it's below even the 20.

4 So we may argue about what the standards
5 should be but the actual results are five. That's what I
6 thought I heard in somebody's presentation. So did I get
7 it right, staff?

8 **MR. ELDER:** I think the numbers are --
9 you're in the right range. It's five to seven, eight.
10 And I just want to -- again, as Mr. Rinker had said
11 before, we've never regulated to 7,000 Becquerels per
12 litre. That's a drinking water standard.

13 We don't regulate drinking water. And the
14 case would be is we started to take action on SRBT well
15 before any of the residential wells actually got to that
16 standard. We were concerned that they get to a fraction
17 of that standard and, you know, took a regulatory response
18 at that time, looking at it from both a human health
19 perspective but also looking at the future use of the
20 groundwater.

21 **THE CHAIRMAN:** Thank you.

22 Other questions?

23 Okay. Thank you very much.

24 **MR. CASTRILLI:** Thank you, sir. Thank you,
25 Commission Members.

1 **THE CHAIRMAN:** We'll move to the next
2 submission which is an oral presentation by Ms. Linda
3 Harvey, as outlined in CMD H5.3 and H5.3A.

4 Ms. Harvey, the floor is yours.

5
6 **10-H5.3 / 10-H5.3A**
7 **Oral presentation by**
8 **Linda Harvey**

9
10 **MS. HARVEY:** I'm Dr. Linda Harvey. I'm a
11 family physician, licensed to practice in Ontario.

12 Two days ago, I received from SRB a package
13 of material countering sentence by sentence some of the
14 points in my submission to CNSC of April 19th. I received
15 this at my home address.

16 I have no arguments with the package. I do
17 believe there is an issue here of both confidentiality, or
18 privacy, and of protocol, and I'll let CNSC deal with
19 that. I'd like to stay focused on my main point here.

20 Let me begin by stating that the maximum
21 safe dose of any ionizing radiation to the human body is
22 zero. That's zero. Please keep this in mind.

23 This is spelled out rather clearly in the
24 latest publication of the series, "Biological Effects of
25 Ionizing Radiation" or the BEIR VII put out by the

1 National Academy of Science, USA, in 2006, and is
2 generally accepted by the scientific community.

3 At several points in the CNSC material on
4 this topic that we're reviewing today, it is stated that
5 there are no detectable effects of radiation below doses
6 of 50 to 100 millisieverts. This is simply not true.

7 There are several recent studies showing
8 clearly that these effects can be found at radiation
9 levels far lower than this on some of them, even at
10 effects lower than the public regulatory dose of one
11 millisievert.

12 The strongest of these studies is the KIKK
13 study out of Germany in 2008 which deals with the issue of
14 increased levels of leukemia around nuclear reactors in
15 Germany. This is a culmination of a series of studies in
16 Germany and Britain dealing with this issue.

17 They found that there were statistically
18 significant increases in leukemia in children under five
19 within five kilometres of all 16 German nuclear reactors.
20 These effects were not predicted on the basis of radiation
21 models in use today.

22 This study has been scrutinized by a panel
23 of experts in Germany selected by the German government
24 and was found to be sound. The German government now
25 accepts this study.

1 The exposure levels to these children at
2 five kilometres would be in the order of 1.96 -- or $1.9 \times$
3 10^{-6} to 3.2×10^{-4} millisieverts per year. This is
4 hundreds or thousands of times lower than the predicted
5 dose for negative effects and it's also lower than the
6 dose that the company SRB has in its product literature as
7 its exposure to the public surrounding its facility. And
8 that level that they give is .0065 millisieverts.

9 Now, there were no other risk factors
10 identified that could account for this pattern of cancer
11 and the UNSCEAR in 2000 accepts leukemia as a legitimate
12 radiation effect.

13 Another study in 2007 of nuclear workers,
14 400,000 workers in 15 countries with an average cumulative
15 dose over their working lives of 19.4 millisieverts found
16 statistically significant levels of cancer in these
17 workers.

18 There's been a similar study in 2004 in
19 Canada, looking at Canadian workers. This was just short
20 of statistical significance but did show this effect. The
21 mean annual dose or the mean cumulative dose for these
22 workers was 13.5 millisieverts over a lifetime.

23 There was a study in 1989 in Canada of Port
24 Hope, Elliot Lake, Pickering and Chalk River looking at
25 rates of childhood leukemia. This study almost reached

1 significance in three of those locations, the exception
2 being Chalk River. And this study has been dismissed by
3 CNSC as being not valid.

4 In 1991, Johnson and Rouleau at tritium and
5 birth defects in the area of Pickering.

6 They found statistically significant
7 increases in Down's syndrome at Pickering, non-significant
8 increases at Ajax and not significant increases in other
9 central nervous system defects.

10 What all this means is that any exposure is
11 unsafe. I think this data has to be taken seriously and
12 that all unnecessary exposures must be avoided.

13 It is the mandate of the CNSC to protect
14 the Canadian public from harm or illness derived from
15 radioactive sources.

16 This would mean in this context that there
17 should not be any unnecessary exposures allowed and I
18 would submit that commercial products made-for-profit
19 would constitute an unnecessary exposure.

20 Now, it would appear from the discussion
21 this morning and from data that I have that it is not
22 possible for SRB to run its business without releasing
23 contamination into the environment around it.

24 We've talked about wells at some length. I
25 just wanted to point out in that context two things; one,

1 that contamination in any well has access to the entire
2 aquifer and that contamination in a well and in an aquifer
3 can go where it wants to go. Its movement is governed by
4 geological forces of which we have a fairly incomplete
5 understanding. We can guess where it's likely to go. We
6 don't know where it's going.

7 And I also would like to say, with respect
8 to the drinking water levels that have been discussed that
9 the newer and lower levels are based, at least in part, on
10 an improved understanding of the effects of tritium and of
11 radioactivity on the developing embryo and foetus, stages
12 of human development which are far, far more sensitive to
13 radiation than the adult organism. They also reflect an
14 increasing knowledge of patterns of distribution and
15 retention of tritium in the body.

16 Not yet reflected in our regulatory changes
17 is our steadily increasing understanding of the effects of
18 radioactivity, even in minute doses, on the genetic
19 material of the human body. Any radiation-induced genetic
20 changes -- or many radiation-induced genetic changes are
21 not immediately reflected in overt and visible illness.

22 Damage to the genetic material of somatic
23 or body cells can give rise often decades later to
24 cancers. We know this. Damage to germ cells, the eggs
25 and sperm can take generations to reveal itself. This

1 damage, once established, is irreversible and can pass
2 from generation to generation.

3 We're not -- we're barely starting to see
4 this. It's still way below the radar.

5 There's mounting evidence that these subtle
6 radiation effects can occur at lower and lower doses. In
7 fact, it only takes one radioactive particle given off by
8 a single atom to damage a gene. It really behoves us to
9 treat radioactivity and radiation exposure with respect.

10 Now, every particle of tritium left in the
11 environment has the potential as it decays to damage
12 living tissue, human or otherwise -- and we need to
13 remember that we share this planet -- and to give rise to
14 effects such as cancer and genetic defects.

15 I think CNSC must become conversant with
16 and comfortable with recent biomedical research and that
17 may mean getting on staff people with expertise in this
18 area.

19 I believe, given the above material, that
20 the duty of the CNSC in respect of this situation is
21 obvious and I fully expect the CNSC to live up to its
22 mandate to protect the Canadian people from harm due to
23 radioactive exposure and to disallow the continuation of
24 this source of contamination.

25 Thank you.

1 **THE CHAIRMAN:** Thank you.
2 Questions? Anybody?
3 Monsieur Harvey?

4 **MEMBER HARVEY:** I would appreciate to have
5 your comment on the -- you have had the opportunity to
6 read all that -- the documents submitted, as well by the
7 staff and by SRB and the response letter that you have
8 received from SRBT.

9 So apart from the general aspect of tritium
10 I would like to have your comment on the -- if we look at
11 the recommendation from the staff, for example, there
12 would be no effect because there have been tremendous
13 effort to reduce the releases from the facility.

14 So I would like to have your comment on --
15 general comment on those documents -- these documents.

16 I'm just referring to all the stuff that
17 I've been presented by the staff on the data, on the
18 conclusion and as well as the -- your response to -- I
19 mean your comment on the response letter that has been
20 addressed to you by Mr. Levesque.

21 **MS. HARVEY:** Okay. First of all, with
22 respect to the staff, I concur with the gentleman who
23 spoke before me, that the models that are currently being
24 used for biological effects of radiation are out of date
25 and are not appropriate for current use.

1 So to the extent that staff is basing their
2 work on those models, I think there are some things that
3 need to be worked with.

4 **MEMBER HARVEY:** About the answers given by
5 Mr. Levesque to your letter -- to your submission?

6 **MS. HARVEY:** Okay. The letter was polite.
7 I don't have a problem with the letter in itself. It was
8 very professional.

9 I do have a problem with (a) the fact that
10 it came to my home address which should not have been
11 given out to a third party, I feel; and (b) that it came
12 hours before I was leaving to come to the conference. So
13 I did not have time to prepare a response to that
14 material.

15 **MEMBER HARVEY:** Thank you.

16 **THE CHAIRMAN:** Dr. McDill?

17 **MEMBER MCDILL:** Excuse me, just a few
18 questions.

19 When did or how did SRB send out the
20 letters and on what basis were the addresses obtained?

21 And I have one more question also.

22 **MR. LEVESQUE:** Stephane Levesque, for the
23 record.

24 We received the written submissions from
25 the public and we used the information that was on those

1 written submissions which I assume was public information
2 as it was released to us and I'm assuming other
3 individuals.

4 The letters, about two-thirds of them were
5 hand-delivered in Pembroke and the rest were mailed.

6 **MEMBER MCDILL:** Were they mailed within one
7 day of the date? Most of them are dated May 4th. I
8 haven't gone through them all.

9 When did the mailings go out? It seems
10 like it's a long delay to get to the people's second
11 concern.

12 **MR. LEVESQUE:** No. Stephane Levesque, for
13 the record.

14 May 4th is on the letter. They were mailed
15 all within six days of May 4. We put a package together
16 with new brochures, with other information we provided the
17 public. So it took quite a bit of time to get all that
18 together and to get all the mailings out. So I would say
19 within -- I think it was within six -- just calculating
20 here -- within six business days of May 4th they were all
21 mailed or hand delivered.

22 **MEMBER MCDILL:** So you received the address
23 on a -- the addresses were given to you, provided to you?

24 **MR. LEVESQUE:** Stephane Levesque, for the
25 record.

1 I'm actually looking at, right now, what
2 was issued by the Secretariat and it's the actual written
3 submission of Dr. Harvey and her address is right at the
4 top of the submission.

5 **THE CHAIRMAN:** Just to clarify, if
6 intervenors send us a submission and the submission
7 include their home address it's in the public domain. So
8 just so everybody understands how that works.

9 **MS. HARVEY:** Okay. I was not advised not
10 to include personal material on the document. I was
11 advised that I had to include personal material to be
12 included in the submission. So that part was not clear.

13 **THE CHAIRMAN:** I don't know what you mean
14 by -- I don't know if personal information is labelled
15 here, kind of a home address.

16 **MS. HARVEY:** Okay. I was asked, when I
17 went to register for a submission, that I needed to
18 include my name and address.

19 **THE CHAIRMAN:** Okay.

20 **MS. HARVEY:** And I understood that that
21 needed to go on the document but apparently it didn't.

22 **THE CHAIRMAN:** I'm just being told it's a
23 requirement under Rule 19 -- 18.

24 **MS. HARVEY:** Okay.

25 **THE CHAIRMAN:** I'm getting some procedural

1 aspects here.

2 **MS. HARVEY:** Okay. Now, for future
3 reference, does my name and address need to go on the
4 document or in the email that accompanies the document?

5 **THE CHAIRMAN:** Deal with this in our
6 decision, we'll get back to this.

7 **MS. HARVEY:** Okay.

8 **THE CHAIRMAN:** Let's not do it right now.
9 Go ahead.

10 **MEMBER McDILL:** My other request is to
11 staff. Without going into names, could you briefly
12 outline the types of individuals on staff who have
13 training in the biological and biomedical and scientific
14 aspects of radiation, particularly with respect to
15 epidemiology and that sort of thing?

16 **MR. ELDER:** I'm going to ask Rachel Lane
17 who's our Acting Director of our Radiation and Health
18 Science Division to answer that question.

19 **MS. LANE:** I'm sorry, can you please repeat
20 the question.

21 **MEMBER McDILL:** Could you outline the
22 qualifications of members on staff with respect to this
23 issue?

24 **MS. LANE:** Thank you.

25 CNSC staff have a variety of backgrounds in

1 epidemiology, health physics, radiation biology, radiation
2 physiology and so on, as well as many, many years of
3 experience.

4 **THE CHAIRMAN:** Sorry, can I jump in here.

5 In addition to all of this, how much
6 reliance do you make on Department of Health, World Health
7 Organization, international bodies, all of those things?
8 I'm just trying to understand how all of this comes into
9 our regulatory input.

10 **MS. LANE:** Rachel Lane.

11 All of the scientific information, current
12 scientific information is discussed and very intensively
13 reviewed by the United Nations Scientific Committee on the
14 Effects of Atomic Radiation. UNSCEAR puts out reports
15 fairly regularly on the most up-to-date understanding of
16 the sources and effects of radiation and this is the basis
17 of the -- the scientific basis of what CNSC bases our
18 understanding on, and it is based on the best science
19 currently available in the world.

20 That information is used by the ICRP with
21 respect to the way in which they put recommendations forth
22 for radiation protection.

23 I would like to make a comment on a couple
24 of things that were brought up; one with respect to the
25 KIKK study. First of all, I think you should be made very

1 aware that CNSC staff has been in touch with the authors
2 of that report and have worked with them discussing this
3 report. As well as you may be aware that the German
4 government had a review of this report, and this report
5 concluded, first of all, Grosche, Bernd Grosche was one of
6 the authors of the work, found no indication that tritium
7 discharges from the Krümmel Nuclear Power Plant were
8 involved in any excess of childhood leukaemia found
9 nearby.

10 And currently there is no support for a
11 causal relationship between any chemical or physical risk
12 factor and the observed risk of childhood leukaemia among
13 children younger than five years of age living within five
14 kilometres of the German nuclear power plants. The
15 observed risk remains unexplained.

16 Other countries as a result of the KIKK
17 study, including the French and the British, have not
18 found similar findings around their nuclear power plants.

19 **THE CHAIRMAN:** So we obviously have
20 differences of opinion here between -- so you disagree
21 with what was presented?

22 **MS. HARVEY:** This is where we need to argue
23 this on a scientific basis and it's going to be a task not
24 necessarily for this afternoon, but it highlights a place
25 where CNSC can do some really serious good work by delving

1 into this science and by really attempting to find out the
2 truth behind what's going on here, rather than accepting
3 models and outdated ways of thinking.

4 **THE CHAIRMAN:** Okay, thank you.

5 Any other questions? Thank you very much.

6 We'll do one more, I think, before breaking
7 for lunch.

8 The next submission is an oral presentation
9 by the International Institute of Concern for Public
10 Health, as outlined by H5.6 and 5.6A, sorry I jumped here.
11 I apologize.

12 So we are -- oral presentations by Ms.
13 Janet McNeil as outlined in CMD H5.5.

14 Ms. McNeil, the floor is yours.

15
16 **10-H5.5**

17 **Oral Presentation by**

18 **Janet McNeill**

19
20 **MS. McNEIL:** It may take me a little more
21 than 10 minutes if I speak slowly as you requested at the
22 beginning of this event so that things can be recorded. I
23 have timed this but I spoke pretty fast when I was timing
24 myself.

25 And I do also have some additional comments

1 to make at the end about things that have happened here
2 today on top of these remarks that I had prepared ahead of
3 time.

4 This is the first time I've intervened at a
5 CNSC hearing, although I have attended several and have
6 also on several occasions written letters to the CNSC with
7 my comments and observations.

8 The letter I sent in by the intervention
9 deadline pointed out that I have a number of concerns
10 about SRB's operations and that my particular focus of
11 concern was the company's use of depleted uranium and its
12 processes.

13 I first heard about depleted uranium
14 several years ago. DU was a highly dangerous substance
15 and I was frankly taken aback to hear that it was in use
16 by little SRB in Pembroke.

17 Depleted uranium has been found on the
18 bodies of Cameco workers from Port Hope 23 years after
19 they stopped working there. It's found in the bodies of
20 soldiers who have been in various conflicts around the
21 world and it's theorized that so-called Gulf War Syndrome
22 may be caused by exposure to DU.

23 Of course it isn't just Gulf War veterans
24 by now who have been similarly afflicted, but veterans of
25 many other conflicts as well.

1 The use of DU is always denied by our
2 government, yet it turns up in soldiers' bodies all the
3 same.

4 According to information I have come
5 across, and I may mispronounce this word, I'm extremely
6 unscientifically minded -- Nanometer -- Nanometer-sized
7 particles of DU less than one-tenth of a micron and
8 smaller, once inhaled or absorbed in the body can cause
9 long-term damage to one's health. And I have the
10 reference here for that.

11 I was already very concerned about SRB's
12 tritium emissions, now I'm also very concerned about SRB's
13 employees and their possible exposure to depleted uranium.

14 There is not merely no safe level of
15 exposure to tritium, there is certainly no safe level of
16 exposure to depleted uranium.

17 As SRB and the CNSC no doubt know there is
18 not wide public awareness of the dangers involved with
19 either of these two substances, both of which can be
20 inhaled, ingested, and absorbed through the skin.

21 I would like to know where SRB's supply of
22 depleted uranium comes from. How was it shipped? What
23 exactly does the DU consist of? What exactly is in it?
24 How is the DU stored? In what kind of containers? How is
25 it disposed of?

1 What protection is afforded to SRB's
2 workers? Are they given material safety data sheets on
3 the safe handling of depleted uranium? Are the contract
4 workers who power-wash the stacks given material safety
5 data sheets about both tritium and DU exposure? Are all
6 these bits of information readily available to members of
7 the SRB staff and public should they wish to know?

8 The CNSC prides itself on transparency. Is
9 SRB transparent with respect to its practices of receiving
10 storing, handling, and disposing of DU materials?

11 Now, I've written to the CNSC in the past
12 and on some occasions have been told that my remarks came
13 after the public hearing process and thus would not be
14 taken into account.

15 There are some issues with CNSC process
16 that I would like to express out loud here today for the
17 public record.

18 The CNSC process seems to be skewed very
19 much in favour of the Proponent who was given endless
20 opportunities to make remarks throughout the public
21 hearing, and in this case was added to the agenda very
22 much at the last minute.

23 We intervenors are sharply limited to our
24 10 minutes. We must prepare our remarks ahead of time.
25 Unlike the Proponent, we are not given endless opportunity

1 to comment on what is taking place here today at the
2 public hearing. No special arrangements made for us.

3 In my view, CNSC staff use scientific
4 jargon and terms in a very deliberate way to obfuscate
5 rather than to clarify and make transparent.

6 There is an arrogance here that I find
7 disturbing. I've read of this kind of arrogance before in
8 a book called Welcome to Shirley, a memoir from an atomic
9 town with respect to meetings held at Brookhaven National
10 Laboratory, now a superfund site by the way.

11 The author of that book says:

12 "The scientists repeatedly retreated
13 into obscure technical answers and
14 jargon".

15 This is by now a very familiar phenomenon
16 to any of us who attend CNSC hearings.

17 It seems to me the CNSC staff hide behind a
18 false cloak of scientific facts while conveniently
19 ignoring scientific data that do not support the CNSC
20 agenda.

21 It seems CNSC staff give a surprising
22 amount of latitude, and I would say a misplaced attitude
23 of trust toward the Proponent, whose facts and figures are
24 not always accurate and who has often failed to act in
25 good faith with respect to the decommissioning fund which

1 in my opinion is unrealistically low and in no way
2 adequate to meet the actual costs likely to be involved.

3 CNSC makes claims to be an agency that
4 performs its duties in a transparent matter (sic), yet it
5 is very clear that nuclear proponents have the special ear
6 of the CNSC and its staff.

7 CNSC is not providing a reasonable comment
8 period for public input on the tritium studies reports. A
9 60-day comment period is standard. The CNSC has been slow
10 in updating its website about the studies, reports,
11 hearing and comment period. I wonder how much you are
12 really welcoming public input on these studies.

13 As regards to SRB, I believe this is a
14 company run by people who are neither transparent nor
15 trustworthy, who have on occasion provided inaccurate data
16 about their emissions and who do not take seriously their
17 obligation, vis-à-vis the decommissioning fund for which
18 they are responsible.

19 SRB cites letters of support which are
20 transparently empty of any real substance. The CNSC
21 claims to value real science, yet gives credit to letters
22 of support from people who seem to be saying merely, "We
23 like this company because it provides charitable donations
24 when we ask it to". I see no science, hard facts or
25 substance there.

1 In my view the company does not appear to
2 have any real regard for the people it is damaging with
3 its practices.

4 It seems to me that if the company really
5 wanted to operate in good faith it would relocate to a
6 zone of exclusion somewhere else, first taking
7 responsibility for the proper decommissioning of the site
8 on Boundary Road in Pembroke.

9 I want to conclude with some questions that
10 I guess you would call rhetorical. I do not really expect
11 answers but I would like them to be recorded on the public
12 record here today.

13 Why are the people in the environment of
14 Pembroke expected to quietly accept their role of
15 sacrificial lambs and human guinea pigs while this tritium
16 poisoning exercise is practiced on them?

17 Why should a company with 18 employees have
18 more rights and fewer responsibilities than the thousands
19 of cities -- the thousands of citizens of Pembroke? This
20 has been puzzling me for a long time.

21 If one citizen in Pembroke offends his
22 neighbour with a malfunctioning barbeque or a wood stove
23 or an obnoxious dog even, he or she will be shut down and
24 fast. Yet, this company goes on year after year, creating
25 long-lasting and dangerous pollution that is very likely

1 making people sick, very definitely rendering groundwater
2 toxic and contributing to the deterioration of the Ottawa
3 River and the local food chain.

4 How can this possibly be defended?

5 Why is a company that claims it is doing
6 and creating no harm providing bottled water to some
7 residents yet continuing to assert that there is no harm
8 being done? If there is no harm then there is no need for
9 bottled water; this is not rocket science.

10 Why is it that all of our politicians act
11 as a personal cheerleading squad for this company and
12 treat citizens who wish to defend their right to a clean
13 environment as troublemakers? Are our politicians not
14 elected to represent all of us?

15 How can the president of this company get
16 away with telling the council of the City of Pembroke that
17 his company's activities carry no risk to the public when
18 the only way he could make this statement truthfully would
19 be by eliminating tritium emissions entirely and cleaning
20 up the mess that his company has already made, which of
21 course is not even possible.

22 How can he claim no risk when three boxes
23 of tritium lights fell off a courier truck in the City of
24 Ottawa in December 2000 and had to be rescued and handled
25 by an emergency crew with the street cordoned off; when a

1 smashed compass at the Petawawa Military Base has to be
2 handled by people suited up in protective gear?

3 No risk; Humm.

4 How can the City of Pembroke justify taking
5 on the huge debt of SRB's historic pollution onto the
6 backs of City of Pembroke taxpayers and all for the sake
7 of a company that employs 18 people?

8 I may not be clever with figures but the
9 math here makes no sense to me.

10 I would like to know how much of our
11 taxpayer's money the Tribunal has spent or caused to be
12 spent on the tritium studies project, a project set in
13 motion we know, as a direct result of interventions by
14 members of the Pembroke public on SRB in 2006.

15 This bottle of water that I have here in
16 front of me is here as a symbol. Wayne and Doreen
17 Peever's well, known to your staff as RW-3, located 1.1
18 kilometre from the SRB facility contains tritium at a
19 level of 190 becquerels per litre; an increase from the
20 most recent previous sampling.

21 SRB President, Stephane Levesque, assures
22 the Peevers that their well is safe. Yet the Ontario
23 Drinking Water Advisory Council has recommended a standard
24 of 20 becquerels per litre and has stated this level --
25 stated:

1 "This level is already being achieved
2 at all municipal drinking water
3 treatment plants in Ontario, even in
4 the vicinity of nuclear facilities."

5 (As read)

6 And as we all now know, there is no safe
7 level of tritium in drinking water. Calling it safe is
8 dishonest. Referring to it as legacy pollution is no
9 comfort whatsoever to Wayne and Doreen Peever.

10 How can SRB president and any of his
11 consultants and CNSC Tribunal Members and staff assure the
12 Peever's in good faith that they should go ahead and drink
13 this water? Would you want to drink it yourselves, wash
14 dishes in it, shower in it; allow infants and pregnant
15 women to drink it, expose a foetus to it?

16 Would you want to live in the neighbourhood
17 around SRB? Some families with young children are now
18 contemplating leaving. They are seriously concerned about
19 the health implications of living there for their young
20 children.

21 I have one final question to ask the
22 Members of the CNSC Tribunal and staff and the President
23 of SRB: Please tell me why you feel the citizens of
24 Pembroke or indeed citizens anywhere should place their
25 trust in you.

1 I recently heard a radio report describing
2 a Canadian hero that had died ---

3 **THE CHAIRMAN:** Okay, I think we've heard
4 enough.

5 **MS. McNEIL:** I've got two sentences.

6 **THE CHAIRMAN:** Please finish it.

7 **MS. McNEIL:** Two citizens.

8 --- died in the Haiti earthquake. He had
9 thrown his body on top of others in order to protect them;
10 he died a hero. This was described as his having chosen
11 to do the hard right instead of the easy wrong.

12 I would like to hear of the CNSC beginning
13 to do the hard right also. Permitting this company to
14 continue operating constitutes a serious moral and ethical
15 act of responsibility.

16 **THE CHAIRMAN:** Thank you.

17 Let's open it up; anybody has questions?
18 Questions?

19 Dr. Barnes?

20 **MEMBER BARNES:** Based on this, and also Mr.
21 Levesque's response back to Mrs. McNeil, Mr. Levesque, you
22 state that SRB's imagery of depleted uranium is less than
23 10 kilograms.

24 So what does that word "inventory" mean?

25 Is that an amount that you've had for years, is that the

1 amount you go through per year or month or what does that
2 mean?

3 **MR. LEVESQUE:** Stephane Levesque, for the
4 record.

5 That's as of the end of April the amount
6 that we have onsite is less than 10 kilograms.

7 **MEMBER BARNES:** How much do you -- what's
8 the average amount that you've used over the last five
9 years, per year?

10 **MR. LEVESQUE:** Stephane Levesque, for the
11 record.

12 I don't know exactly the last five years
13 but I could tell you that the last few years we've had
14 approximately 6.6 kilograms onsite and that number
15 fluctuates between how much is in raw form and how much
16 finds its way into the PUTTs (Pyrophoric Uranium Tritium
17 Traps). We have about 4,200 grams right now that are in
18 loose form that are ready to use in traps and each trap
19 stores 30 grams.

20 On top of that we have the container that
21 we get from our tritium suppliers and it's made up of
22 various containers and the 4,200 in traps, so it's 6.6
23 kilograms right now.

24 **MEMBER BARNES:** I'm not sure I'm getting
25 the answer. How much do you use per year of depleted

1 uranium?

2 **MR. LEVESQUE:** Stephane Levesque, for the
3 record.

4 I would estimate approximately would be the
5 usage of six Pyrophoric units which each contain 30 grams.
6 So I would say, I guess, 180 grams a year would be used
7 and that 180 grams would find its way to a licensed waste
8 facility that would dispose of it.

9 **MEMBER BARNES:** Staff, do you have any
10 comment on the safe handling and disposal of depleted
11 uranium, particularly focusing on the questions that the
12 intervenor has asked, the four bullets?

13 **MR. ELDER:** Sure. I'm going to ask Rachael
14 Lane to talk about the health effects about depleted
15 uranium, to start with.

16 **MS. LANE:** Rachael Lane.

17 The 2006 UNSCEAR Report summarizes the
18 international understanding of the health effects from
19 exposure to uranium and this does include depleted
20 uranium.

21 Uranium is not very radioactive and its
22 chemical properties are such that any ingested insoluble
23 uranium is quickly excreted. The toxicological effects on
24 the kidney are well understood and uranium limits and
25 guidelines are lower and more restrictive than would pose

1 a radiological risk.

2 Based on the 2006 UNSCEAR Report they
3 concluded that there is no epidemiological evidence for an
4 association between uranium and cancer.

5 Thank you.

6 **THE CHAIRMAN:** Anybody else; any other
7 question?

8 I'd like -- somebody asked a question
9 whether -- it's a good question -- whether staff here
10 believe that you would drink the water in some of those
11 residential wells. What's the answer?

12 **MR. ELDER:** Yes. You can go around the
13 table if you want, but...

14 Yes, there's something called background
15 radiation and this is like a fraction of 1 percent in what
16 you get from background.

17 **THE CHAIRMAN:** You want to comment on that?

18 **MS. TILMAN:** Yes. Background radiation,
19 natural background radiation -- not background radiation
20 due to the pollution resulting from tritium emissions from
21 facilities -- is around 2 Becquerel's. So when you say
22 that this is much less than natural radiation, I'm not
23 sure what you're talking about.

24 In the Great Lakes region, the lakes that
25 haven't been affected as much by the nuclear power plants

1 -- their levels are in the order for one to three
2 Becquerel's, whereas Lake Ontario, Lake Erie and other
3 areas that have been affected are greater.

4 **MR. ELDER:** All our understanding of
5 radiation is based on dose, not on -- one Becquerel
6 tritium gives you a dose like any other radioactivity.
7 The background radiation from all natural sources is in
8 the few micro-millisieverts, a year range, and we're
9 talking about an extra -- you know, microsievert.

10 So that's why I said -- in terms of
11 background -- you can't separate tritium from the other
12 sources of radiation.

13 But the models do account for how tritium
14 is absorbed and used in the body like all the other
15 radioactive materials. This is well-modeled, well-
16 understood. We recognize that there can always be
17 improvements in models. But you have to look at what dose
18 you're receiving and it's based on dose.

19 Thank you.

20 **MS. HARVEY:** I'd like to comment on the
21 models remark because there was something else I wanted to
22 say about -- actually it isn't something that came out
23 this morning, but it's something that came out on the day
24 of the tritium studies open house in which a staff person
25 admitted that you folks hadn't predicted well regarding

1 the groundwater plume.

2 So models are models but reality is another
3 thing altogether and I'm not reassured when I hear that
4 you're relying on some sort of model for something. It's
5 been admitted that you didn't predict well on the
6 groundwater plume.

7 **THE CHAIRMAN:** Mr. Levesque?

8 **MR. LEVESQUE:** I'm begging to have the
9 question asked of me and I'd like to have it on the
10 record. Although it may not make a difference, I think
11 it's important.

12 There's something that we've written in
13 most of the letters to the members of the public where
14 people will say that staff at SRB Technologies obviously
15 makes a living from the facility and is biased in some
16 way, but let's remember that our friends and family and
17 ourselves live near the facility.

18 Myself, I've lived in Pembroke -- I'm not
19 even from Pembroke -- I've lived there for 17 years since
20 I've been at the facility. I live within one kilometre of
21 the facility with my five-year-old daughter and some of
22 the best meals I've ever had are with my friends that live
23 300 metres from the facility, eating their vegetables
24 every day.

25 I would never put them, or my own ---

1 **MS. HARVEY:** Vegetables.

2 **MR. LEVESQUE:** --- family at risk and I
3 just think it's important on the record that when there's
4 allegations made as to our good faith that we make those
5 statements so that people understand and see on the record
6 that that's how we feel -- that we feel it's entirely safe
7 for us and for our families.

8 Thank you.

9 **MS. HARVEY:** You've chosen to live there
10 but the people who live in the neighbourhood around SRB
11 didn't choose to have that pollution put in their
12 neighbourhood.

13 **THE CHAIRMAN:** Mr. Graham?

14 **MEMBER GRAHAM:** Just to get something clear
15 on depleted uranium; I think you said you have about 10
16 kilograms or 10 pounds. I'm not sure. I think it was kgs
17 you mentioned. And when you said your annual usage was
18 300 and some grams, why do you need to keep so much
19 inventory? I guess that's my question.

20 And is that regulated in the licence?

21 **MR. LEVESQUE:** Stephane Levesque, for the
22 record.

23 Thank you for the question. I actually
24 have the breakdown right in front of me. We have 6.63
25 kilograms onsite, including 4,200 in loose form. We have

1 ---

2 **MEMBER GRAHAM:** Forty-two hundred (4,200)
3 grams?

4 **MR. LEVESQUE:** Pardon me?

5 **MEMBER GRAHAM:** Forty-two hundred (4,200)
6 grams?

7 **MR. LEVESQUE:** Forty-two hundred (4,200)
8 grams, yes. So for 4.2 kilograms, so I guess two-thirds
9 of it is in loose form.

10 When we actually purchased a quantity of
11 depleted uranium, there's minimum order quantities to be
12 able to maintain depleted uranium, we didn't need that
13 much. Yes, it's true, but that 4,200 grams is kept in a
14 safe location, in safe containers and it's handled
15 appropriately in fume hoods with safety precautions. And
16 when you're looking at each active PU, pyrophoric unit
17 containing 30 milligrams, you're looking at a pyrophoric
18 unit being something of a diameter of a loonie, maybe
19 about an inch high in diameter and that's all that's
20 contained within that.

21 **MEMBER GRAHAM:** And my other question to
22 CNSC staff -- is this part of licensing of how much
23 inventory can be held and so on, or is this part of the
24 licence?

25 **MR. ELDER:** It's part of the licence in

1 terms of they're allowed to possess the nuclear substances
2 that are associated with the activities. So a small
3 amount of depleted uranium is associated with the
4 manufacturing of tritium light sources, so they are
5 allowed to have that material.

6 And the radiation protection programs, all
7 their programs, their fire protection program all have to
8 account for that material being onsite.

9 **THE CHAIRMAN:** But the consent -- we will --
10 -- if I understand correctly, depleted uranium is less
11 radioactive than natural uranium. The real concern with
12 depleted uranium is its toxicity, if you consume it, if I
13 understand correctly. So then what are the precautions
14 that the workers never get it -- you know, to actually
15 inhale this?

16 Mr. Levesque?

17 **MR. LEVESQUE:** SRB Technologies, for the
18 record.

19 The precautions that we take ensure that
20 the toxicity of the depleted uranium is taken account for.
21 They're handled with proper clothing. They're handled in
22 fume hoods. The use in how we manufacture the PU, our
23 pyrophoric unit, does not cause a risk to our staff and
24 all the proper handling and basically storing precautions
25 are taken care of.

1 **THE CHAIRMAN:** Thank you.
2 Anything else? Any other questions?
3 Mr. Harvey?

4 **MEMBER HARVEY:** I would like to ask a
5 question to Ms. McNeill.

6 From your presentation -- I mean we have --
7 when we discuss and decide here in the Commission, we have
8 to base our decision on data, on what's presented,
9 documents, and your position, your point of view is so far
10 from the -- what we've got in all our documents and which
11 are, in fact, the result of a huge effort in -- devoted to
12 that as well by the staff and by SRB.

13 So what is your appreciation of all those
14 documents? I mean, what is your appreciation? What kind
15 of confidence you have in the documents that are in front
16 of us on which we have to base our own decision?

17 **MS. McNEILL:** Yeah, the documents from
18 whom?

19 It's abundantly clear when I hear Dr. Linda
20 Harvey say something about the German study and then I
21 hear your staff members say something else. We're not
22 reading from the same book. You folks are not reading the
23 same sources that I'm reading.

24 For somebody to say that depleted uranium
25 isn't dangerous, for example -- well, you're not reading

1 from the sources that I'm reading from.

2 And I'm not a scientifically-minded person.
3 I have to -- well, I shouldn't have to apologize for that.
4 I have the kind of mind that I have. I don't understand
5 all this scientific stuff. I don't understand maybe a
6 tenth of what's gone on here today, which is why I want to
7 support CCRC in asking for an extra comment period.

8 I'm going to have to listen to the
9 transcripts of all this stuff again, look over reports
10 again. This is very complex stuff. The average person --
11 and maybe I'm not an average person. I don't know. I
12 find this stuff really really difficult to follow, but I
13 feel that the staff has an agenda.

14 I feel your staff has an agenda to keep
15 this company going and it doesn't seem to matter what the
16 facts are. It doesn't seem to matter what the tritium
17 levels are. It doesn't seem to matter that there are no
18 safe levels of tritium. You can talk about models of --
19 you can talk about groundwater plumes. I mean, it's been
20 admitted that you didn't predict well on the groundwater
21 plume but it's okay to just let this keep going?

22 And what about the people who -- you know,
23 these people with -- I've forgotten how many -- you know
24 163 or whatever the heck it is. They're not drinking it.
25 Why should they drink it? I wouldn't want to drink it.

1 The Ontario Drinking Water Advisory Council has
2 recommended 20 becquerels per litre.

3 So I don't know. I'm going on too long
4 answering your question, but I just -- it's all very
5 dense. It's very complicated. You've got a million staff
6 members. I'm totally a volunteer by the way. Nobody is
7 paying me to do any of this. You know I'm doing this on
8 my own time. Even to go home and watch this darn
9 transcript again it means another day away from the things
10 I'd rather be doing.

11 It's complex, complex stuff but I don't
12 feel that your staff necessarily gives you the answers
13 that -- everything's broken down into such tiny little
14 pieces. You know, each person has a tiny little piece of
15 the puzzle. It's like this is a thousand-piece puzzle and
16 each of your staff people only has a piece of it. And I
17 don't either. I'm not saying I do. I don't understand
18 the science but this is people's lives and a neighbourhood
19 and a community that needs to be able to start getting
20 into recovery mode from what's already happened for the
21 past 20 years.

22 **THE CHAIRMAN:** Okay, thank you for this.

23 We are going to break now for lunch. We'll
24 reconvene at 10 to 2:00. Thank you very much.

25 --- Upon recessing at 12:49 p.m.

1 --- Upon resuming at 13:52 p.m.

2 **THE CHAIRMAN:** Good afternoon. We are
3 back.

4 We'll move to the next submission which is
5 an oral presentation for the International Institute of
6 Concern for Public Health as outlined in CMD 10-H5.6 and
7 10-H5.6A. I understand Ms. Anna Tilman will make a
8 presentation.

9 The floor is yours.

10
11 **10-H5.6/10.H5.6A**
12 **Oral presentation by the**
13 **International Institute of Concern**
14 **for Public Health (IICPH)**

15
16 **MS. TILMAN:** Thank you very much.

17 As you may realize, the International
18 Institute of Concern is presenting because of its concern
19 over the activities of SRBT and what they consider to be
20 unacceptable high levels of emissions, the effects that
21 these operations have on the community and on future
22 generations.

23 Accompanying me is Dr. Gordon Albright who
24 at times is assisting with IICPH in these documents as
25 well. So at times it could be both.

1 time, 10 days anyway, to respond if need be. I don't know
2 the contents of it. I don't know if the letter that was
3 sent responds to the questions that I directed to M.
4 Levesque through email and gave my email address to
5 respond.

6 Since our material had to be in May 12th I
7 was -- needed that. So I am leaving that with you, okay,
8 as an issue of concern.

9 I think we're very well aware of the
10 community issues from presentations from community members
11 so we don't have to really deal with this.

12 What I've been trying to do is look at the
13 total air emissions since the company began operations. I
14 do not have any data from 1991 or to '95. So bear this in
15 mind, that this annual data is based on what I was able to
16 get.

17 You can see that and, as you're well aware
18 from this hearing, that starting with 2006 you see a more
19 dramatic drop in emissions and the concerns created a
20 change in the licensing where the facility was not granted
21 the processing licence for 18 months and resumed in the
22 latter half of 2008 to '09. I understand that there is no
23 reclamation activities that were done during that time
24 which may or may not account for the difference in
25 emissions.

1 What is not clear to me is where the 40
2 terabecquerels approximately in 2009 is coming from seeing
3 that there was no processing going on? I still consider
4 that a significant quantity.

5 One of the things I wanted to look at,
6 based on the half life of tritium and, again, bear in mind
7 that 1996 was the year in which I could start doing this,
8 is look at the accumulation of tritium from the air
9 emissions in the period for which there was data. And as
10 you can see, because of the large emissions that were in
11 the previous slide, it really overtakes. But there are
12 still -- the effects are there, as we know, the historic
13 effects.

14 But if you look in the order to which this
15 one area has been affected by -- I'm not talking about
16 dispersion here. I'm talking about the actual accumulated
17 air emissions. This is highly significant. This graph
18 tracks approximately a half-life, a little bit more than a
19 half-life.

20 And in the next half-life period going up,
21 even if there's no emissions you'll still see a
22 significant accumulation from the effects of the tritium
23 releases. And this is what the community, their concerns
24 relate around to a large degree.

25 I want to talk a bit about emissions to

1 were able to get this, about two-thirds of these wells
2 showed an increase in radioactivity. It was very
3 irregular, the pattern we could see from the graph despite
4 the reduced level of activity even in that 18-month
5 period. And we feel that the increase -- any return in
6 activity or increase in activity through processing cannot
7 be justified when there is already unacceptable drinking
8 water contamination that may have gotten worse.

9 Looking at some of the soil chemistry in
10 the area, there is comprehensive report that was produced
11 by -- I think it's EcoMatrix. And in their appendix they
12 gave a listing of the well depth. That's come out this
13 morning and the difference.

14 This is one sample of a site near the
15 facility labelled there MW0729. There are other samples
16 but you notice that in number of the samples, the levels
17 tended to increase the deeper you went.

18 I would like to say a little bit, if I can
19 now, about the groundwater information that came out this
20 morning, if I may. It's not in my slide.

21 I'm deeply concerned with the information
22 that came out from this morning about the model of data,
23 the lack of measurements; the lack of consistent
24 conditions under which measurements and monitoring can be
25 done and to get any meaningful statistical analysis.

1 We don't have consistency there. We don't
2 have proper measurements. We have seasonal variation,
3 variation in depth, variation in power washing. I don't
4 know the frequency of the power washing that goes on and
5 how that contributes to those numbers. So it's hard to
6 look at a chart and assume that that represents a real
7 situation.

8 Also, there is a lack of understanding of
9 the relationship of the aquifers, just to the aquifers,
10 and I believe there is a major aquifer in that area. And
11 I didn't hear a mention of watershed, the effect on the
12 watershed, and there would be a watershed section for this
13 area too.

14 Also, I am concerned that I haven't heard
15 any mention of the effects on terrestrial and aquatic
16 habitat and they normally are canaries in the coal mine
17 unfortunately.

18 So I just want to allude to that. I mean
19 it's acknowledged that the real situation is very
20 complicated and the models are too simplistic that are
21 presently being used. So that's not on my slide.

22 Regarding these release limits, some
23 concerns as to how they are derived, because a lot of
24 expressions are used that, "Well, we're well within
25 limits", but how good are these limits? How well are they

1 done?

2 And from a public perspective, there is
3 concern that they are prepared by the licensee. The
4 models; not sure how good they are. There's no public
5 process in which they can be re-evaluated or professional
6 outside expertise to see if they are reasonably good.

7 I noticed derived release limits have gone
8 down but in 2006, at one point the releases were actually
9 only 5 percent of the derived release limits.

10 That always "percenting" things -- I must
11 say I've been a math professor for years. Always
12 presenting things as a percentage is misleading. You've
13 got to give the absolute numbers because to say, "Well,
14 I've only done 5 percent damage" or something doesn't mean
15 very much when the actual magnitude of the damage is
16 significant. So state the numbers and let's not fudge it
17 with percents.

18 Okay. One of the things I find -- can't
19 find any mass balance anywhere. What's going on into --
20 what goes in? How much is coming out in products or waste
21 of various forms?

22 It is essential that this kind of
23 calculation be done in any compliance reports, they be
24 required by the Commissioner and that -- by the Commission
25 and this information is accessible to the public. It is

1 standard practice for companies who deal with chemicals to
2 do mass balance analysis.

3 We see areas where this hasn't been done in
4 other fields and it is a problem.

5 Dr. Harvey went over a number of issues
6 regarding the health effects of tritium. They cannot be
7 ignored. They have to be overstressed. There are
8 vulnerable populations that are most susceptible.

9 Even in the roughly 20-year time that SRB
10 has been operating, you may not necessarily see the
11 effects. The population base is relatively small, which
12 makes it difficult to do a firm epidemiological study.

13 However, we have to -- the Commission has
14 to look at the future and the history cannot be forgotten
15 because it is there; it is real. And how much more damage
16 does want to do and be responsible for?

17 And I'll quote the BEIR Report that says
18 there is no safe level of exposure to irradiation and that
19 can be read there.

20 There's been discussions about the methods

21 ---

22 **THE CHAIRMAN:** You've got two minutes,
23 please.

24 **MS. TILMAN:** Oh, my gosh. Sorry. Okay.

25 So I will move on from this slide about the

1 dose calculations, because I think that spells it.

2 So I can move to conclusions then.

3 And in light of these facts, and the
4 expected revisions to the ODWC, we feel that granting the
5 licence is unacceptable and IICPH is requesting Commission
6 issue an order to reject the licence.

7 I have one more little comment on that, if
8 I may?

9 We feel that from a health/scientific/
10 humanitarian perspective, it makes no sense to put human
11 health and lives at risk by manufacturing tritium-
12 illuminated signs when this can be done by other means and
13 we hope that the Commission pursues this.

14 One last point that came out in today --
15 very concerned about occupational exposure. We talked
16 about workers' exposure.

17 What about the contract workers? What
18 about -- we don't know. I have no idea how many contract
19 workers are employed at various times, if they come in and
20 out. There might be a number of staff that have been
21 there for years but how many people are occasional and may
22 only do a job once or twice? What kind of training do
23 they receive for the various tasks and exposures that they
24 have?

25 So thank you very much.

1 2009 as being the full first year of operation since the
2 facility resumed operation in July '08. So if you look at
3 the numbers in 2008, that doesn't account of the entire
4 year because we didn't process for the full year; same
5 with 2007 and same with 2006.

6 So to compare these numbers, you're not
7 comparing apples and oranges.

8 I think that if you're to look at 2009
9 releases, you would expect 2010 releases to be much
10 comparable to what we had in 2009, being a full year of
11 operation.

12 **MEMBER BARRIAULT:** Also, I like the comment
13 that was made, what goes in must come out in terms of
14 tritium concentrations.

15 In mercury contaminations for example, we
16 look at mercury going into a plant and what's coming out
17 and what's lost in between.

18 Has that model ever been looked at in terms
19 of monitoring tritium?

20 **MR. LEVESQUE:** Stephane Levesque, for the
21 record.

22 It's something I have answered in some of
23 the letters that we've sent to members of the public and
24 I'll quote from what I say here:

25 "We tabulate and balance tritium

1 received in raw form and expired
2 lights, tritium contained in products
3 shipped to customers, tritium waste
4 shipped to licensed waste facilities,
5 and tritium released to the
6 environment. SRB is acting
7 responsibly to protect the environment
8 and human health. The inventory
9 control information includes types,
10 quantities and activity of new product
11 shipped, specific customers as well
12 types, quantities of expired product,
13 so on, so forth." (As read)

14 And we do a tritium mass balance every
15 month at our facility where we tabulate all the "ins", as
16 you say, and all the "outs" to see if there are any
17 inconsistencies there. But all the numbers are well
18 within eh requirements.

19 **MEMBER BARRIAULT:** Are these numbers
20 tracked by the CNSC staff?

21 **MS. ERDMAN:** Ann Erdman.

22 SRBT is required to keep the inventory. We
23 do not require that this information be submitted to us.
24 The information that's required is required in their
25 annual compliance report.

1 CNSC staff has no concerns with the
2 information that SRBT does submit to us. However, when I
3 do go on an inspection at the facility, or other staff, we
4 do look at this inventory control at SRBT and CNSC staff
5 is satisfied with SRBT's keeping of their inventory
6 records.

7 **MEMBER BARRIAULT:** I understand that
8 they're keeping the records, but the actual numbers
9 themselves are not being monitored, is what you're saying.

10 You're looking at the fact that they are
11 doing it but you're not monitoring the fact that maybe
12 their loss is going up or it's decreasing or the trend or
13 what's happening there. Is that being looked at?

14 **MR. ELDER:** That's one of the things that
15 we are looking in terms of making sure that that sort of
16 routine information is there about losses, and that's one
17 of the things that came out of our review of the tritium
18 study reports looking into the technologies that -- make
19 sure we're getting reporting on that.

20 So we're looking at making sure that is
21 available in terms of their annual compliance reporting
22 and in terms of how much they lose.

23 **MEMBER BARRIAULT:** The trends, the
24 tracking?

25 **MR. ELDER:** Well, then that allows you, if

1 you get the information, to do tracking as a performance
2 indicator of loss of inventory.

3 **MEMBER BARNES:** That's fine. Thank you.

4 Thank you, Mr. Chairman.

5 **THE CHAIRMAN:** Mr. Harvey?

6 **MEMBER HARVEY:** Merci, monsieur le
7 président.

8 Page 9 of Ms. Tilman's presentation,
9 today's presentation, page 4 of that, the DRLs for tritium
10 are extremely lax. The emissions in the 2006 that caused
11 tritium processing to be halted in 2007 were only five
12 percent of the DRLs.

13 Could you, staff, just comment that and
14 maybe make the link with the DRL and what causes the
15 operation to be halted in '07?

16 **MR. ELDER:** Essentially on this one, I'm
17 not saying -- the current limits in SRBT's licence are not
18 based on the Derived Release Limit calculations. As you
19 noted, while these ones we still believe would be
20 protective of human health, they obviously were not
21 protecting the groundwater. And so when they restarted
22 operation in 2008, we went to calculate one based on
23 groundwater protection which gets you a much tighter limit
24 than you would from a theoretical Derived Release Limit
25 calculation.

1 I think that's one of the things looking
2 we've been in general looking at, at how the Derived
3 Release Limits are used and they are a theoretical
4 calculation in that they could be a starting point for the
5 regulatory limits but they can't be the sole factor that
6 goes into it.

7 And this facility and the other tritium
8 manufacturer, we have moved away from Derived Release
9 Limits to a more performance-based groundwater protection
10 limit.

11 **THE CHAIRMAN:** Ms. Tilman?

12 **MS. TILMAN:** Sorry. I understand that
13 they're using an operating licence condition. I have no
14 idea how that level was determined. I do know the levels,
15 though, because I've tracked them. And it was still 7200
16 or 62.7 Terabecquerels.

17 I don't know if that is considered
18 protective or not. That's my point. We don't know.

19 However, in the report, in the 2006 report
20 in CNSC study, "Tritium Releases and Dose Consequences in
21 Canada in 2006", my point is a table was presented on page
22 18 which shows the releases and then it shows the percent
23 of DRL which is Derived Releases (OLC) to be five percent.

24 It doesn't show what the actual limit is.
25 What I mean, from a public perspective, if a public looks

1 at your tritium document and says, "Oh, they're only
2 releasing five percent of this limit, that's good" but the
3 limit isn't stated there to indicate.

4 And then how are those limits derived? You
5 said they're tighter. In what way are they tighter? We
6 don't know. And still and in previous years, the limits
7 were at some times magnitude. You know, they were quite
8 substantially high. In 2006, there were 29 -- my gosh,
9 there were -- sorry. Sorry for that.

10 There were 2.9 -- 29 Becquerels per week.

11 **THE CHAIRMAN:** Okay. Staff.

12 **MS. TILMAN:** I stopped.

13 **THE CHAIRMAN:** I'm actually surprised
14 because I think I've seen tonnes of actual numerical
15 values for the DRLs.

16 Can somebody try to find out and clarify
17 all of this? Anybody from staff?

18 **MR. ELDER:** We can clarify it but in our
19 original CMD which we issued in January there is a table
20 of the actual releases for a five-year period including
21 giving the current licence limit and there is some -- I
22 believe there is some rationale around what that licence
23 limit is based on.

24 We can give you more if you want but the
25 data was presented, not as a percentage; as actual numbers

1 in our Day One CMD.

2 **MS. TILMAN:** Just from a public
3 perspective, when you look at the public documents that
4 are presented -- and I don't mean the submissions here
5 which is actually more technical and you have to dig for
6 it to find it -- you will see it presented. If you look
7 at that document I mentioned, the CNSC document, you'll
8 see on page 18 it's a percent and you don't see the DRL
9 value there or the OLC value.

10 **THE CHAIRMAN:** Okay.

11 Mr. Graham?

12 **MEMBER GRAHAM:** A couple of observations or
13 questions.

14 A very good presentation and I'm wondering
15 at the outset, the intervenor mentioned that she tried to
16 obtain information from CNSC staff. And I just wonder is
17 there a policy or is there -- when the intervenors want to
18 obtain information to make a presentation, is it a policy
19 of staff to give them all the information that they're
20 trying to request that's reasonable?

21 **MR. ELDER:** Yes, and we try to make sure
22 that we have the information available and it is
23 information that we can release. There is always
24 occasionally some information that belongs to the licensee
25 that the licensee has to -- it's easier to go to the

1 licensee and get them directly rather than us to go
2 through our process of asking permission to release third-
3 party information.

4 That's potentially why we would go and ask
5 them to go to the licensee instead.

6 **MEMBER GRAHAM:** So really what you're
7 saying the only time that you would refer them to the
8 licensee would be if it was proprietary information that
9 the licensee might have?

10 **MR. ELDER:** Well, there's also a timing
11 issue on the need to -- we have to go ask the licensee
12 anyways before we release it, even if it's confirmed it's
13 not priority or not.

14 But one of the things -- hasn't been much a
15 discussion today but we have been trying to make sure that
16 SRBT has information on its website but to look and make
17 sure that's done in a -- it's useful information so that
18 we're trying to get them -- we have put into the handbook
19 and the licence then to develop a more robust process
20 around public information that's on their website to
21 actually survey the users and say, "Is there anything
22 missing?"

23 We're trying to make sure that to the
24 extent possible, that information that we have is
25 automatically made public by the licensees; so their

1 annual compliance reports and things like this.

2 **MS. TILMAN:** I asked questions where I
3 couldn't find numbers for emissions for release limits for
4 2000 to 2005. That's an example of the kind of questions
5 I was asking. I was asking for release limits, a
6 consistent way. I couldn't find -- I was asking for
7 emissions from 1990 to 1996. And I still -- the questions
8 were very basic. They would enable me just to put the
9 graphs together.

10 **MEMBER GRAHAM:** I guess then my question
11 would be, was that information -- is that information even
12 available between 1991 and 1995 regarding atmospheric and
13 accumulated air emissions?

14 **MR. ELDER:** I don't have all the details of
15 this request, but at some point the information we have --
16 but it's in archive. The further you go back, the less
17 it's available in electronic form.

18 So in terms of a quick turnaround, again,
19 we understand there's issue. We do try to provide the
20 information we have in a timely manner, but if you're
21 under a time limit, we may ask them -- it may be quicker
22 for them to get it from the licensee.

23 **THE CHAIRMAN:** We've been trying to
24 encourage all our licensees for proactive disclosure,
25 right. I would assume that these kind of graphs would be

1 automatically posted by SRB on their website. Are they or
2 are they not, or is anything near those kind of data on
3 the website?

4 **MR. LEVESQUE:** Stephane Levesque, for the
5 record.

6 A lot of this information is available on
7 our website. We have our annual compliance reports for a
8 number of years. I don't know the exact number of years,
9 I'll have to look it up.

10 But regarding public disclosure and
11 information to the public, I think it's important to know
12 that in the 22-odd months that we've had our licence,
13 we've had 16 public requests for information and the
14 average number of work days that it takes us to answer,
15 depending on the complexity of the information or the age
16 of it, as in this case in the early nineties, is seven and
17 a quarter days. So in 7 days we usually answer.

18 I think you can see our commitment by the
19 letters we've sent to the public. It's a huge undertaking
20 and a lot of information is available on the website.

21 Now, we don't know on the top of our head,
22 we then would have to ourselves go through the website and
23 the information on the website to find it, especially when
24 it comes to information in the early nineties, it takes a
25 bit of time.

1 We acknowledge this request. We said it
2 would take us some time. We had every intention of
3 meeting it, we just weren't able to provide the
4 information in time for the presentation.

5 **MEMBER BARNES:** I just want to get
6 clarification again on our friendly groundwater issue and
7 that's the map that you showed here. It doesn't have a
8 number on it but it's the Becquerel's per litre in water
9 depth. I'm looking at the inset data which is at 7
10 metres.

11 We were told before on the staff
12 presentation, on staff's page 15, Figure 8, which relates
13 to this well that that was 2006 data.

14 This is Eco-Metrics which is the
15 contractor, I guess, for the licensee and it's dated
16 December 2007.

17 So is this -- is the data being reported
18 here 2006 data on a 2007 report or is it 2007 data on a
19 2007 report?

20 Mr. Levesque, do you know?

21 **MR. LEVESQUE:** I'm sorry, I didn't produce
22 this slide so I'm not sure exactly. I'd have to view it
23 closer to see exactly what we're talking about here.

24 **MS. TILMAN:** I have the source somewhere
25 back in my pile of documents there.

1 I believe it's '07 data but '06 data --
2 okay, thank you. Kelly said '06 data.

3 **MEMBER BARNES:** Okay, thanks a lot.

4 **THE CHAIRMAN:** Dr. McDill?

5 **MEMBER McDILL:** Thank you.

6 A number of concerns have been raised and
7 one of the questions the intervenor asked is: "If
8 emissions were dropping, why are we seeing an upward
9 trend?"

10 And maybe I could ask staff to -- in terms
11 of its steady state mass balance for the monitoring or the
12 prediction, it's equation one, to explain for example for
13 Figure 4, how you would see a slight increase before
14 general decrease?

15 **MR. RINKER:** Mike Rinker, for the record.

16 In general because there is tritium stored
17 in the pore water, it takes approximately five years for
18 emissions today to reach that well.

19 So what we're observing over time are sort
20 of like the five-year record of what has happened since we
21 have data available, so back into perhaps 2000 -- actually
22 the data was taken from a 2006 sample so its 2001 to 2006
23 releases would be represented in that model.

24 And we've tried to make some predictions
25 moving forward, acknowledging that we don't have a clear

1 indication of what current releases to the atmosphere,
2 which are much slower, correlate to what would be the pore
3 water concentration. So we have assumed a fairly high
4 value of what was observed in 2006.

5 **MEMBER McDILL:** So it would be staff's
6 assertion that the profile predicted in, for example
7 Figure 4, is conservative?

8 **MR. RINKER:** Mike Rinker, for the record.
9 I think the long-term trend is certainly
10 very conservative. It could be a factor of a hundred
11 lower but we don't have data to support that and we didn't
12 want to make any predictions based on some estimations.

13 **MEMBER McDILL:** And with respect to number
14 7 on page 14 and the historical events that occurred at
15 SRBT with the order and closure and so on, poorly
16 controlled releases of tritium, this is in the past, do
17 not pose a health risk to workers or the public now or in
18 the foreseeable future. You are very confident of that
19 statement?

20 **MR. RINKER:** Mike Rinker, for the record.
21 Acknowledging that many of these data
22 points are from monitoring wells where we have the very
23 high values and so the values that are in, for example,
24 the hundred thousands of Becquerel's per litre are not
25 sources of drinking water and exposure pathways for those.

1 It wouldn't occur until they reach, for
2 example, the river or something like that. The
3 groundwater wells, although -- sorry the wells of which
4 could be used for drinking water, although the values are
5 higher than what we would consider acceptable, they do not
6 approach or exceed the current guideline provided by
7 Health Canada of 7,000 Becquerel's per litre.

8 I'd emphasize that that guideline is 10
9 percent of the public dose of 1 millisievert per annum.
10 The dose received by drinking that water is exceedingly
11 low.

12 **MS. TILMAN:** I just want to comment a bit
13 on that too.

14 On -- I can't remember what page on your
15 presentation, there was a table of the drinking water
16 levels in different jurisdictions. Some jurisdictions
17 were left out. In Colorado and California they've gone
18 down to less than 20 Becquerel's per litre.

19 So the other issue I have is the
20 assumptions that there is no effect from these levels deep
21 down and also on other organisms which we are related to -
22 - are related to the human health factors as well, and
23 these assumptions that are made are part of what I was
24 saying.

25 My concern about this whole groundwater

1 study, acknowledging the complexity of it, acknowledging
2 that we don't have some of even the historical numbers
3 that contributed to this, makes it very difficult. So
4 that's when one has to be very cautious in the assumptions
5 that one draws.

6 And just in case I get kicked off of the
7 platform here, I just want to recall my request to have
8 that time and time period to reply to the letter sent out
9 by SRB over the comments made by April 19th by our
10 organization.

11 **MR. ALBRIGHT:** And to respond to the
12 information you can get.

13 **MS. TILMAN:** And to respond to the
14 information that I have sent out in May, early May, and
15 did not get.

16 **THE CHAIRMAN:** Any other questions?

17 I have one. What about this -- there's an
18 assertion about the danger of this organic bound tritium.
19 I've been reading about this in other places. Somebody
20 talk to us about what's the concern with this particular
21 phenomenon?

22 **MR. ELDER:** I'll ask Dr. Steve Mihok to do
23 that.

24 **MR. MIHOK:** Steve Mihok.

25 Are you asking about organically bound

1 tritium in sewage sludge or just organically bound tritium
2 in general?

3 **THE CHAIRMAN:** You can do both.

4 **MR. MIHOK:** I'm not the best person for
5 organically bound tritium in general, but I'll give a
6 layman's answer here and maybe someone from radiation
7 protection can answer it better.

8 But organically bound tritium does have a
9 larger effect and that's taken into account in the dose
10 conversion factor when organically bound tritium is
11 ingested, and so it obviously is dealt with differently.

12 And again in the health effects report in
13 the tritium studies project, there will be an infinite
14 amount of information. It's already public on how you
15 deal with that in terms of internal dissymmetry and so
16 forth.

17 In terms of uncertainties about organically
18 bound tritium in the environment, that was a major aspect
19 of the tritium studies project and we funded research on
20 that topic. We have a lot of information essentially
21 about to come out perhaps later in the year from the last
22 research project of the University of Ottawa.

23 What we do have out public is mainly the
24 work in Pembroke, which is highly relevant to what we're
25 talking about today, and that's work from 2005 and 2007 on

1 organically bound tritium in soils, on produce and what
2 the dose consequences are. So that came out just
3 literally about a month or so ago and the information does
4 not raise any concerns. We did not find any evidence of,
5 let's say, accumulation, unusual events that we don't
6 understand in terms of our environmental model.

7 So organically bound tritium and what we
8 understand about it is essentially being accounted for in
9 the science that we have and in the science that we use in
10 regulation.

11 **THE CHAIRMAN:** So you don't need special
12 additional control for that particular chemical?

13 **MR. MIHOK:** At the moment I don't think
14 there is any evidence that tells us that we have to
15 necessarily sort of put it under the magnifying glass to
16 be concerned about any consequences. What we do have to
17 consider is the variation in organically bound tritium.
18 Is it equal to the amount of the thing that we measure
19 which is the tritiated water? Is it two times, three
20 times under certain circumstances? Is it different in
21 milk versus honey, versus vegetables?

22 And these are more academic questions than
23 practical regulatory questions because the other things
24 that we have in place in terms of our licence limits, in
25 terms of the ALARA principle and all the entire regulatory

1 framework essentially has brought levels of tritium down
2 to such low levels that these issues don't really have any
3 implications. They're sort of splitting the hairs on what
4 the actual number might be when you calculate the final
5 dose.

6 **MS. TILMAN:** May I just make a comment
7 about the OBT? There are recently quite a few studies on
8 OBT that are out there and there are two kinds of OBTs,
9 one bound to carbon which is a half-life, embodied
10 biological half-life with over 500 days, which is a
11 concern, and another form bound to the other organic-type
12 molecules to like the sulphurs and nitrogens which is 40
13 days. So they retain much longer in the body than water.
14 That's the condition.

15 That's one of the issues, is their
16 retention and their effect. When you bound to carbon
17 it's the effect on the DNA.

18 There is -- these studies don't often enter
19 into the dose calculations and I think CNSC with its
20 mandate should be seriously looking in the OBT areas in
21 terms -- for the health and protection of people. So I
22 don't quite agree with the comments by the staff member.

23 **THE CHAIRMAN:** Thank you.

24 Did you want to comment further on this?

25 Mr. Levesque.

1 **MR. RINKER:** Sorry, Mike Rinker.

2 I just wanted to comment on your first
3 question about asking if additional controls would be
4 needed for OBT, organically bound tritium.

5 Organically bound tritium is not released
6 from the facility. Tritium is converted to OBT in the
7 environment so controls wouldn't be possible. I just
8 wanted to respond to that.

9 We also have Bert Theriault. I think he
10 wanted to follow up on how OBT is considered in those
11 calculations.

12 **MS. TILMAN:** But you know that tritium
13 replaces hydrogen in water. It's a natural thing for it
14 to do. There is no distinguishing in the system between
15 having an H-3 tritium atom versus having the "H", the non-
16 radioactive hydrogen.

17 So it's a common occurrence that it's
18 happening. The more organic matter you have, the more
19 prevalent that kind of converting will take place. I
20 can't say to what degree, you know, but I know that's
21 going to happen.

22 And that's the concern because the sludge
23 then gets fed out to other areas too. The sewage sludge,
24 for example, taking that as an example, gets spread out in
25 other areas.

1 So we're spreading the damage even further
2 in different ways. So it is an important factor.

3 **MR. RINKER:** I agree. What I'm saying is
4 that releases from the facility itself do not contain OBT.
5 OBT is formed in the environment.

6 **THE CHAIRMAN:** We all got it. We all got
7 it. The experts want to talk about how -- go ahead. You
8 were about to say something about that.

9 **MR. THERIAULT:** Thank you.
10 Bert Theriault, for the record.

11 Okay. In terms of organically bound
12 tritium, that's correct. There are two forms. The
13 exchangeable form is tritium bound to carbon and the
14 biological half-life in the adult is around 40 days. Non-
15 exchangeable tritium, organically bound tritium is tritium
16 bound to oxygen or sulphurs which essentially behave as
17 water with a biological half-life of about 10 days of the
18 adult.

19 Now, this is taken into account. The dose
20 per unit intake of organically bound tritium is about
21 twice that of tritiated water. So if a person ingests one
22 becquerel of tritiated water and another person ingests
23 one becquerel of organically bound tritium, the person who
24 ingested the OBT will have about twice the dose that the
25 person who got the HCO.

1 Now, in terms of the long lived by
2 biological half-lives of around 500 days, there are some
3 studies that have found -- have looked at people who have
4 been exposed to tritium and looked at their excretion and
5 their retention of tritium for a year or more after the
6 intake, and found a very small component but a very long-
7 lived component of OBD.

8 So the ICRP model does not take that into
9 account. However, there are models that take into account
10 the longer retention of organically bound tritium. We
11 found that it does increase the OBT dose by somewhat 50
12 percent or so.

13 Now, that being said, in SRBT's dose
14 calculations in their annual report for last year, we
15 asked that they include OBT in their dose calculations.
16 It increased the dose, for example, from ingesting through
17 produce on the order of about 10 percent or so. This
18 represents the dose -- from produce represents 5 percent
19 of the total dose.

20 So it would -- accounting for OBT or long-
21 lived components of OBT would add a small portion of 2
22 percent to the overall dose because the total dose to the
23 public is driven essentially by drinking water, so it's
24 water ingestion which in the infant accounts for about 83
25 percent of the total dose.

1 So the OBT has been taken into account but
2 it represents a small fraction of the total dose which is
3 basically driven by the water.

4 **THE CHAIRMAN:** Thank you.

5 We're going to move on. I've got lots of
6 questions here.

7 Somebody raised a question about
8 contractors onsite. How many contractors are you engaging
9 here, Mr. Levesque?

10 **MR. LEVESQUE:** Stephane Levesque, for the
11 record.

12 The only real contractors that we engaged
13 that would or may be exposed to tritium are those that
14 handle the ventilation systems, the ventilation system for
15 the facility. The maintenance is performed on a monthly
16 basis other than other breakdowns that occur.

17 The urine analysis is taken for the worker
18 following completion of the work and the results are
19 reported to him and the levels that we have been finding
20 have been insignificant.

21 **THE CHAIRMAN:** Are they treated differently
22 than staff? Is there any concern about them being exposed
23 to, you know, any contamination?

24 **MR. LEVESQUE:** Stephane Levesque, for the
25 record.

1 All the contractors that we bring onsite to
2 do work, that could result in exposure, have received
3 training in-house by our staff to be able to know what
4 they will be exposed to, what precautions they should
5 take.

6 In addition to that, the staff follows the
7 same -- not the staff -- the contractors that follows
8 under the same dosemetry service licence that we have and
9 provide urine sample results. So their health is taken
10 care of by the training that we provide.

11 There is somebody from the site that
12 oversees their work to ensure that there is no safety
13 precautions that are not taken.

14 And, again, the results that we have been
15 taking of their urine, shows that the effects from their
16 work is insignificant.

17 **THE CHAIRMAN:** Okay, thank you very much.

18 We are moving on to the next submission
19 which is an oral presentation from Mr. Trevor Schwan, as
20 outlined in H5.4 and H5.4A.

21 Mr. Schwan, the floor is yours.

22 **10-H5.4/10-H5.4A**

23 **Oral presentation by**

24 **Trevor J. Schwan**

25

1 **MR. SCHWAN:** Good afternoon, Mr. President
2 and Commissioners and thank you for allowing this
3 opportunity to present my intervention.

4 So my name is Trevor Schwan and I'm here
5 today to present my intervention to the Commission for the
6 prevention of the proposed licence renewal of SRBT. What
7 I present today is based on the best possible consistent
8 information that has been available as it applies to this
9 hearing.

10 I'm a resident of the City of Pembroke as
11 well as an employee of the City of Pembroke.

12 I'm currently an employee in water
13 distribution and waste water collection.

14 In November of 2009 I started to question
15 my employer's rationale for changing the location of
16 operations' department storage from the location in the
17 industrial park less than 300 metres from SRBT to the
18 quarry road location. I undertook some online research
19 and through that research I unintentionally became aware
20 of the local controversy surrounding SRBT.

21 After further research I was able to
22 confirm through SRBT Compliance Reporting, the presence of
23 elevated beyond background levels of tritium at several
24 city locations where employees routinely performed their
25 daily duties.

1 Our storage facilities in the Industrial
2 Park have been and are currently monitored. One of our
3 recreation facilities is currently monitored. Our waste
4 water treatment plant effluent is sampled but our Town
5 Line Pumping Station is not.

6 I and fellow employees routinely report to
7 Town Line to undertake various duties, as directed, by our
8 employer. We have in the past worked in this pumping
9 station for extended periods of time, exceeding in some
10 instances 40 hours per week and in several instances
11 routine maintenance resulted in over a month of time spent
12 in this station.

13 I have only identified one timeframe that
14 sampling has been done in this pumping station. In the
15 SRBT 2007 Annual Compliance Report, Appendix M, Sewage
16 Monitoring Results for 2007, page 2 shows that a total of
17 10 samples were taken from Town Line Pumping Station from
18 January 25th, 2007 to April 26, 2007.

19 The highest of the 10 readings was 232
20 becquerel's per litre, on February 8th, 2007.

21 If I correlate this to Appendix N, Liquid
22 Effluent Monitoring Results for 2007 of the same report, I
23 can verify that from the week ending February 2nd, 2007 to
24 the week ending April 20th, 2007 SRBT reported that zero
25 effluent had been released in that time period.

1 This poses several important questions.
2 Who took the samples on these dates? Why are the levels
3 of tritium indicated at this station when there was no
4 release? Has the infrastructure leading to Town Line been
5 assessed? Where at the Town Line Station were the samples
6 collected? Were employees working in Town Line at this
7 time; if so, were those employees aware of tritium in the
8 station and the infrastructure?

9 Are these employees classified as nuclear
10 workers or members of the public? Had, has every
11 precaution been taken to protect these workers from
12 exposure?

13 Why were the samples collected during the
14 period of no release of effluent as reported by SRBT? Why
15 was the Town Line Pumping Station been excluded from all
16 other online published compliance reports for subsequent
17 years?

18 Has Town Line been assessed for STCs which
19 is special tritium compounds? Who is responsible for the
20 oversight and how has this been allowed to happen and what
21 steps will now be taken to address these questions?

22 It is very apparent to me that a definite
23 flaw in the past issuance of operating licence has been
24 missed since the 2007 Compliance Report.

25 This has and will not be taken lightly and

1 has further eroded the public's confidence regarding the
2 licensing process as a whole.

3 I would respectfully affirm that the main
4 objective of this Commission is to protect the environment
5 and the health and safety of the public.

6 There has been a multitude of distinguished
7 intervenors at these hearings in the past, there have been
8 doctors, scientists, industry professionals, and
9 upstanding citizens, all of whom provided credible,
10 tangible arguments against different aspects of tritium
11 and the residual impact of tritium and its associated
12 interactions.

13 I am of the opinion that the concerns of --
14 their concerns have largely been dismissed as they were
15 proposed and misinterpreted. In my opinion the SRBT
16 facility is not providing a beneficial end result to the
17 citizens of Canada. They are in fact a corporate citizen
18 who has been allowed to undertake operations for profit at
19 the expense of the health and welfare to the public and
20 the environment which is theoretically to be protected
21 under the *Nuclear Safety and Control Act*.

22 Can the Commission please explain to me how
23 this re-licensing is in accordance with the Act,
24 specifically Section 9(a)(i)?

25 Why have I and others been subjected to

1 something which has the potential to jeopardize the safety
2 of the person?

3 After many months of research and
4 contemplation I feel confident in stating that the
5 consensus in the international scientific community is,
6 there is no conclusive proof that tritium causes a
7 carcinogenetic effect, although it is also scientifically
8 accepted that there is no definitive proof that it does
9 not have a carcinogenic effect.

10 One thing that the scientific community
11 does understand is that it does in fact have an effect on
12 the living and the associated scientific community
13 addresses this using the ALARA principle which in widely
14 held opinion is greatly unacceptable.

15 For these very valid reasons I would
16 respectfully request your attention to all interventions,
17 past and present, and decide in favour of not granting an
18 operational licence renewal.

19 I believe the renewal would contravene the
20 mechanisms enshrined in our Constitution put in place to
21 protect any and all citizens from an unreasonable hazard.

22 Corporate citizens shall not take
23 precedence exceeding the rights of others.

24 In my opinion SRBT has not displayed a
25 contributory benefit to all citizens past, present and

1 future and yet this illogical debate is allowed to
2 continue in light of all the substantiation presented by
3 intervenors in previous hearings before this Commission.

4 We can surmise that no amount of tritium is
5 a safe level of tritium and in a shared opinion your
6 actions would be a superior service to Canadians by acting
7 appropriately on their behalf, as opposed to that of the
8 licensees.

9 Thank you for the attention to this
10 concern.

11 **THE CHAIRMAN:** Thank you.

12 Questions?

13 Monsieur Harvey?

14 **MEMBER HARVEY:** Just -- my question is
15 addressed to staff. In Mr. Schwan's submission, in the
16 first page, the first paragraph, on fourth or fifth
17 sentence; I think that resume, all the presentation, this
18 location has, in my opinion, the highest potential for
19 excessive levels of tritium and STCs.

20 I just want the staff comment on that; is
21 that a fact or it's not a fact?

22 It's the first paragraph of Mr. Schwan's
23 submission. The first one, the four -- 5.4, first
24 paragraph, on the middle ---

25 **MR. SCHWAN:** Is that the supplemental

1 information that you're referring to?

2 **MEMBER HARVEY:** No, no, I'm referring to
3 the first ---

4 **THE CHAIRMAN:** April 19 document; right?
5 It's the seventh line.

6 **MEMBER HARVEY:** Just one page or so
7 document, yeah.

8 **MR. SCHWAN:** I'm sorry for the confusion.
9 I don't have that in front of me.

10 **MEMBER HARVEY:** No, but I'm just reading,
11 this location, you mean the site where you work I suppose.

12 "Has in my opinion the highest potential
13 for excessive levels of tritium and STCs."

14 So I mean you start from there, so ---

15 **THE CHAIRMAN:** This is the station that you
16 are saying 900 metres down ---

17 **MR. SCHWAN:** That's right, that's Town Line
18 Station and if I could, I'd provide a little background
19 information about Town Line Station.

20 Town Line Station -- and also a little bit
21 of a backgrounder -- SRBT did hold an information session
22 with city employees, based on my request and actions with
23 this pending intervention and they addressed several of my
24 questions.

25 But the Town Line Station, we came to the

1 conclusion that prior to 2006 there had been no testing
2 whatsoever done on Town Line Station, which in my opinion
3 is quite shocking. It was sampled 10 times in 2000 -- as
4 I mentioned in my report and of those 10 times, those 10
5 samples were taken during periods of no release.

6 So that makes me wonder why where there are
7 employees on a regular basis and a regular basis I mean
8 minimum two employees twice a week for a minimum of an
9 hour a day, why this was not assessed for organically
10 bound tritium. It is a sewer system, if there's going to
11 be organically bound tritium that's where it's going to be
12 evident and just the design of the station itself leads to
13 a potential for inhalation due to the design. It comes
14 through the pipe, the receiving pipe and drops into a wet
15 well which causes a lot of mist.

16 So you would routinely be inhaling -- you
17 know -- whatever, we don't know because it's not being
18 monitored, right? So this is a big area of concern and I
19 want to know why it hasn't been addressed.

20 **THE CHAIRMAN:** Mr. Levesque, you want to
21 say something about that?

22 **MR. LEVESQUE:** Stephane Levesque, for the
23 record.

24 First, I must say I'm real disappointed by
25 Mr. Schwan's presentation today as when we had the

1 information session he shook my hand leaving the
2 presentation, saying that all his concerns were addressed,
3 other than not having been notified by his employer prior
4 to when he found out about the release so I'm
5 disappointed.

6 But that being said, in the letter that
7 we've given Mr. Schwan, which we've included in Appendix 5
8 of our written submission, it states that and it's a very
9 important point I think that has to be highlighted, that
10 on November 15, 2006 that we did a sample which was the
11 highest one to date and that sample showed 282 becquerels
12 per litre.

13 Now again through public documents that are
14 available on our website, during that same week we
15 released quite a significant amount of tritium to sewers
16 so it's not true to say that all those numbers were taken
17 when there were not releases. Some numbers were taken
18 when there was no releases and yes there were some
19 numbers in the Town Line Lift Station and the reason for
20 that is because SRB's not the only contributing factor to
21 tritium in the sewage.

22 We have water that's in the Ottawa River
23 being taken into the water treatment plant that has a
24 level ranges between five to ten becquerels per litre
25 depending on what is being monitored that's in the system.

1 We have hundreds of nuclear energy workers that work at
2 SRB and another licensee not very far from us that
3 obviously have body waste, urine and other matter that
4 gets excreted to the sewage.

5 Now that's not to be underestimated because
6 it's very often that you could have a nuclear energy
7 worker that has a concentration in urine of 100,000
8 becquerels per litre. So those are inputs other than what
9 SRB's releasing into the sewer.

10 So we're not the only input but that being
11 said, in 2006 as we have made a plan to perhaps increase
12 our releases to sewer, we proactively without urging or
13 direction nor the Ministry of Labour nor CNSC staff -- we
14 proactively undertaken to take measurements at the Town
15 Line Lift Station.

16 We've done some of those with our maximum
17 theoretical releases to sewer where we could see exactly
18 what we could get out of Town Line Lift Station and we
19 continued today, every day to have city staff basically
20 take a daily measurement at the Pollution Control Plant,
21 something that we're not required to do, something we're
22 proactively doing and once a week a third party comes and
23 collects those results and gives us an accurate sample
24 results.

25 Those concentrations at Town Line, the ones

1 that we found in the past, the theoretical ones that we
2 could expect in the future, the ones that we have at the
3 Pollution Control Plant -- even if someone was exposed to
4 air that was saturated to the concentration that's in the
5 sewage, their dose who would be far less than the ten
6 microsievert that's considered an insignificant dose for
7 control of our practice.

8 We even did -- and you can see in the --
9 again in Appendix 5 -- the letter to Mr. Schwan which is
10 exactly the information that we presented to members of
11 the public at the information session.

12 We presented two scenarios --one again on
13 page 4 or 5. If an individual was exposed to the air
14 saturated with concentration going all the way up to the
15 drinking water level, which we're far less than that, and
16 the dose you're looking at -- .01 millisieverts -- even if
17 it was at that level which we're not reaching -- right now
18 at 300, which is what it's expected to be at the Town Line
19 Lift Station -- you're looking at doses if somebody works
20 there 2,000 hours a year, .00043 millisievert. We even
21 did calculation if somebody was to consume the sludge at
22 300 becquerels per litre ---

23 **THE CHAIRMAN:** Okay, we get it. We want to
24 have some more questions and answers here ---

25 **MR. LEVESQUE:** All right.

1 **THE CHAIRMAN:** --- so please be short ---

2 **MR. SCHWAN:** Mr. President, if I could
3 respond to that. Those are based on calculations, not
4 actual readings. It's very easy to obtain readings. It's
5 less than a kilometre away. There's never been an
6 engineering assessment done on that line. This should all
7 be duly noted.

8 I think it's important to note as well when
9 I shook your hand, Mr. Levesque, it was out of a business
10 courtesy and I'd also like to draw your attention to the
11 letter than you had sent back to me where it states that,
12 "at the highest level measured at the pollution plant to
13 date is 172 becquerels per litre" and yet in this document
14 obtained through the Freedom of Information from the
15 Records Office here from Ann Erdman to Steve Mihok it
16 states that, "the grab sample of solid sludge collected
17 October 31st, 2006 had a reading of 258.44 becquerels per
18 litre. The grab sample collected at an inlet of sewage on
19 November 15th, 2006 at the Town Line Bennett Street
20 Pumping Station, 294 becquerels per litre."

21 So this information is false and that's why
22 I'm here today.

23 **THE CHAIRMAN:** Before we go any further,
24 can somebody clarify for me -- I'm not an expert in sewage
25 treatment in cities, but I know in Ottawa, for example,

1 the quality assurance/quality control people they measure
2 all kinds of contaminants in the sewage and water
3 processing.

4 Who is -- is Pembroke City -- what kind of
5 measurement do they do? Are you suggesting that SRB
6 should test the sewage facilities or is it up to Pembroke
7 City Hall to do that?

8 **MR. SCHWAN:** I am suggesting that perhaps a
9 qualified third party could do it and this is up to SRBT
10 and the City of Pembroke to decide between themselves.

11 I'm here representing myself as an employee
12 and I believe that the employer is contravention of not
13 providing this information to employees and I think that
14 in some of my supplemental information there is actually a
15 Ministry of Labour appeal that focuses specifically on
16 this. It's in place right now. I actually provided the
17 documents to Mr. Levesque yesterday.

18 That being said, typically having been a
19 City of Ottawa employee in the Water Division, a large
20 centre usually takes on its own testing. A city the size
21 of Pembroke, Ontario would usually rely on the best
22 information provided from an engineering assessment which
23 has not been undertaken.

24 I would also like to point out that the
25 sampling that was conducted and that is currently

1 conducted at the sewage treatment plant is not sludge
2 water. It is, in fact, effluent that is collected just
3 prior to it entering the river so there is no indication
4 of what residual tritium is left in our station, in our
5 lines. There's never been an assessment. It's shocking.

6 **THE CHAIRMAN:** Dr. Barnes?

7 **MEMBER BARNES:** I'd like to address this a
8 little further. I just -- let me start off by asking Mr.
9 Levesque, in Mr. Schwan's presentation -- let me get the
10 date right -- this is the May the 11th letter -- in the
11 middle of the third page unnumbered where it -- the title
12 "Sludge water from pollution control plant plotted against
13 liquid effluent data," et cetera, et cetera. The first
14 sentence in the next paragraph says, "note the extremely
15 high release October 2007, 1,346,000,000 becquerels of
16 tritium were flushed into the sewer." Is that correct,
17 Mr. Levesque?

18 **MR. LEVESQUE:** Stephane Levesque for the
19 record.

20 Which -- if you could repeat again exactly
21 what you're looking at?

22 **MEMBER BARNES:** Yup. Just said it. So
23 this is in Mr. Schwan's presentation dated Tuesday, May
24 the 11th, it's the third --- CMD H5-4A -- third page ---

25 **MR. LEVESQUE:** Yes.

1 **MEMBER BARNES:** --- middle of the page just
2 below the italicized bolded title there.

3 It says, "note the extremely high release
4 October 2007, the 1,346,000,000 becquerels of tritium
5 flushed into the sewer." First sentence of that paragraph
6 right in the middle of the page with ---

7 **MR. LEVESQUE:** Yes, I found it.

8 **MEMBER BARNES:** So is that correct?

9 **MR. LEVESQUE:** That's not per litre.
10 That's the total loading that's in becquerels.

11 **MEMBER BARNES:** And is that during a period
12 where there was essentially no production? October 2007?

13 **MR. LEVESQUE:** Yes, it was in a period of
14 production though.

15 **MEMBER BARNES:** Why would you have that
16 amount of tritium flushed into the sewer in October 2007?

17 **MR. LEVESQUE:** The water that we get and we
18 release sewer isn't necessarily affiliated directly with
19 production. It would be from cleaning of surfaces within
20 the facility, cleaning of parts. We were also handling
21 tritium tubes at the time they were purchasing from
22 another source and our own tritium tubes. So it's mostly
23 related to those practices and not directly production or
24 releases through the stack.

25 **MEMBER BARNES:** So would you agree that the

1 contribution of a nuclear worker that you mentioned the
2 waste -- personal waste -- I guess from a nuclear worker
3 would be extremely small compared to this amount that
4 you're contributing?

5 **MR. LEVESQUE:** Please repeat that question,
6 please? Pardon me?

7 **MEMBER BARNES:** You pointed out that you
8 weren't the only contributor of -- potentially of tritium
9 so and you said that there are nuclear workers assuming
10 from AECL that contribute urine into the system and you
11 quoted a number -- I thinking of a 100,000.

12 Is that amount relatively insignificant
13 compared to the figure that is reported here that you say
14 your company is contributing?

15 **MR. LEVESQUE:** Stephane Levesque, for the
16 record.

17 I wouldn't say that, because if you look at
18 100,000 becquerels per litre, times excretion of 1.2
19 litres a day, times hundreds of nuclear workers being
20 released every day into the sewer, I wouldn't say that
21 it's an insignificant part, no. It's a contributing
22 factor.

23 Ours is -- obviously I agree -- the largest
24 contributing factor, but there's also a contributing
25 factor that's not to be underestimated by the others.

1 **MEMBER BARNES:** So if this was -- say for
2 argument -- October 2009 when you were in full production,
3 what kind of number would you expect to have contributed
4 into the sewer in October 2009 compared to this number?

5 You can give it as a percent increase.

6 **MR. LEVESQUE:** Stephane Levesque, for the
7 record.

8 We've adopted something new now as a result
9 of our environmental management system. We've been
10 establishing targets where we have a maximum daily
11 release. So per week the maximum release that's pretty
12 well possible now would be 1.3 GBqs per day. So it would
13 be -- 1.5 GBqs in a week would be the maximum.

14 If you look at 2009 numbers which I'm
15 looking at now, they average a week 1.1-1.4 BBqs.

16 **MEMBER BARNES:** It seems to me when we
17 wrestle with all these numbers and a number of the
18 intervenors have likewise struggled with the numbers --
19 and watch a health hazard -- I would ask staff in this
20 case because part of the licensing documents refers to a
21 monitoring program.

22 So the question to staff, would there
23 be any problem in extending the monitoring program to have
24 a requirement to include the Town Line Lift Station as
25 part of the ongoing monitoring program?

1 Maybe I should put it to Mr. Levesque first
2 and say would that be a problem for SRBT to include that
3 as part of the monitoring program?

4 **MR. LEVESQUE:** Stephane Levesque, for the
5 record.

6 When we originally initiated the sampling
7 in 2006, we didn't do this on our own. We obviously had
8 discussions with the City of Pembroke, Utilities
9 Department and they had told me at the time that they
10 frequented the bushes opposite to what Mr. Schwan is
11 saying. I'm just reporting the information I was given,
12 that the Town Line Lift station wasn't occupied or used
13 often by city employees and it would actually be not
14 really administratively easy to have somebody meet a third
15 party there to get the sample taken. So we had agreed on
16 taking a number of samples, seeing what those samples
17 would be under the worst case conditions, and then if they
18 were good, to go on from there, just to sample the
19 pollution control plant.

20 So that could be something we could
21 entertain with the city to arrange such sampling if that
22 would be something that they would be looking at.

23 But from what I understand now, I have
24 a letter, I think, in Appendix 42 of my intervention where
25 I'm told that other than Mr. Schwan, I will see that city

1 staff are satisfied with the answers they were given and
2 what's happening including the city and including the
3 Ministry of Labour.

4 But I'm willing always to look at something
5 to make somebody feel comfortable.

6 **THE CHAIRMAN:** Can I -- but I can pursue
7 this further.

8 We just heard that Ottawa City
9 practices are different than Pembroke City practices.
10 Because we have a nuclear facility here, should Pembroke
11 City have sampling, a periodic sample process somehow that
12 you jointly agree to do?

13 If it's common practice in large cities,
14 why wouldn't it be a practice in Pembroke?

15 **MR. LEVESQUE:** Stephane Levesque, for the
16 record.

17 You've go to understand from our
18 perspective, we met with the City of Pembroke, Utilities
19 Department. We met with the CEO for the city. I have a
20 letter that's in Appendix 42.

21 The Ministry of Labour has been
22 involved and both parties say that no further samplings
23 are required and they're not really entertaining doing any
24 additional sampling anywhere else.

25 So that would have something that we would

1 do on our own, I guess, without them requiring it or
2 asking for it. So I guess we'd have to be in
3 communication with them.

4 But we were working with them. Mr. Schwan
5 has a different opinion, disagrees with his employer and
6 with the Ministry of Labour. I am sure this issue is not
7 over and we'll have to come to a resolution some time in
8 the future.

9 **MR. SCHWAN:** If I might, this is currently,
10 like I stated, being appealed with the Ministry of Labour.
11 They failed to address the issue and I think that's
12 recognizable in the supplemental information.

13 I'd also like to point out that the
14 information that was given to Mr. Levesque from Utilities
15 was provided to him by a supervisor and not a board
16 certified engineer, which should be the case.

17 As far as the testing goes, there probably
18 is legislation coming down for waste similar to our water
19 regulations that we follow now.

20 So I don't know. I've had
21 discussions. Obviously, it's not going very good on my
22 end, because I'm here today. But my employer and SRB, I
23 think, have an obligation to protect the employee and to
24 do the necessary engineering assessments and to test where
25 they haven't tested.

1 We're not even taking into
2 consideration the contractors that work at Town Line
3 Station that routinely remove sludge, bring them down to
4 Ottawa here, and deposit them, and have no idea that the
5 actual sludge has tritium in it because there's no
6 reporting of it.

7 So once again, it's another pathway for
8 exposure and I think it needs to be addressed in a grand
9 sense. I think that staff has neglected their obligation
10 and therefore they should look into it with a little more
11 vigour.

12 **THE CHAIRMAN:** Want to continue?

13 **MEMBER BARNES:** I'd just ask staff if they
14 have any comment about -- in looking at the overall
15 monitoring going forward, particularly since you're
16 recommending a five-year program and now that the facility
17 has ramped back up, would this be appropriate to have the
18 Town Line Lift Station as part of the monitoring program?

19 **MR. ELDER:** I'll just -- we did discuss
20 this more this morning and what the basis of the
21 monitoring program is and what the intent was and also how
22 that -- the limit for the sewer was reached.

23 There's a point in it that it was just
24 based on sort of -- suggesting it was based on convenient
25 -- as we said at the morning, we started from the IAEA

1 clearance level and worked downwards so it's a
2 performance-based standard.

3 Safety is assured at 1,000. We've
4 pushed that down to 200 because we believe they can
5 achieve that. That's a performance-based standard so it's
6 not arbitrarily based. You start from a scientifically
7 base, "This is safe but you should go by ALARA and put it
8 down to something where it's a performance base you can
9 live with".

10 But I'll ask Dr. Mihok to go into a bit
11 more detail about the monitoring of the sewer and
12 potential doses that a worker could get from these types
13 of facilities.

14 **DR. MIHOK:** Steve Mihok.

15 I'll address mainly the environmental side,
16 and if you have questions on the health protection issues
17 it's better if someone from Radiation Protection such as
18 Bert Theriault answers.

19 But essentially, you know, we haven't
20 neglected this. I mean, we do rely on guidance from IAEA
21 and so on for the big picture. But as far back as 2007 at
22 a previous hearing, I did a fair bit of work on this and
23 also Bert Theriault was involved in some of the
24 consequences to look at the specific situation in
25 Pembroke.

1 So I discussed the way the sewer system
2 worked with the general manager there, David Atkinson. I
3 did a few spreadsheets looking at worst case scenarios of
4 dumping an entire tank of the maximum allowable amount
5 into the sewer relative to the flow rates at 320 Boundary
6 Road and relative to the flow rates that are consolidated
7 at the sewage plant, and did again that kind of sort of
8 scientific exercise of "what if" someone went in to an
9 area very close to where the tritium was being dumped,
10 what the levels would be.

11 And that "what if" scenario didn't raise
12 any alarm bells. So it seemed quite reasonable to have a
13 routine monitoring program at the end point of the sewage
14 system given that a worst case sort of analysis did not
15 seem to raise any issues of health protection for workers
16 underground.

17 And that's basically where it ended about
18 three or so years ago, and most of the work that has gone
19 on since then has not really changed, at least my view of
20 the risks involved; in that the sewage system readings are
21 taken very frequently and tend to be on the order of about
22 100 or about -- a little bit more, 150 becquerels per
23 litre at the end point.

24 And that seems to fit in fairly well with,
25 like I say, these sorts of back of the envelope

1 spreadsheet calculations of what would happen if you
2 dumped the tritium into the sewer. And so you can just
3 back-calculate as far as you want to any point in the
4 sewer system, but none of those numbers raise alarm bells.

5 **MR. ELDER:** We've also looked at the dose
6 consequences there, so I'll ask Bert Theriault to speak to
7 that.

8 **MR. THERIAULT:** Thank you.

9 In terms of doses, the number here of 232
10 becquerels per litre, so that's tritium in water, we
11 looked at assuming someone exposed ---

12 **THE CHAIRMAN:** Can you speak up, please?

13 **MR. THERIAULT:** Sorry. Someone exposed
14 through inhaling the tritium in water, assuming an
15 equilibrium between the water and the tritium in water and
16 tritium in moisture in air, assuming no ventilation,
17 exposure eight hours a day, five days a week, 50 weeks per
18 year, taking into account saturation intake by absorption
19 through the skin as well, it was -- we were seeing doses
20 of the order of 0.0004 millisieverts per year, so very
21 small.

22 **MR. SCHWAN:** If I might?

23 You have an obligation to base your
24 findings on facts, not assumptions. So your explanation
25 did little to make myself or any of the other intervenors

1 more comfortable about it.

2 The fact still remains, there has been no
3 engineering assessment. If we want to start at a starting
4 point, that might be a good place to start right there;
5 analyze it, have a professional engineer, board-certified,
6 come in; calculate capacity, calculate volumes, start from
7 there. Test the employees. I'll stand up to the plate.
8 Test me. Thank you.

9 **THE CHAIRMAN:** Anything else? Thank you
10 very much.

11 We'll move to the next submission, which is
12 an oral presentation by The First Six Years as outlined in
13 H5.7. Ms Kelly O'Grady will make the presentation.

14

15 **10-H5.7 / 10-H5.7A**

16 **Oral Presentation by**

17 **The First Six Years**

18

19 **MS. O'GRADY:** Mr. President, Members of the
20 Commission, I wanted to ask permission just to take a
21 couple of minutes to address the remarks that Mr. Levesque
22 made. They were personal remarks he made about me and my
23 reputation and because it's on the public record, I hope
24 you'll allow me the opportunity to respond to these
25 remarks?

1 **THE CHAIRMAN:** Go ahead. You've got 10
2 minutes.

3 **MS. O'GRADY:** I have 10 minutes? You're
4 not going to allow me extra minutes?

5 **THE CHAIRMAN:** Well, 11 minutes then.

6 **MS. O'GRADY:** Really, I think I need at
7 least another three on top of my 10. It was a personal
8 attack and I would like to respond to that.

9 The fact that we misrepresented information
10 about SRB to the public isn't true. The information we
11 gave to the public was a copy of the letter I sent to the
12 editor of The Pembroke Observer. That's what we gave and
13 SRB didn't respond to our letter to the paper at all.

14 And the other, that we had advised people
15 not to contact SRB. We told people that if they wanted
16 garden produced monitor or well waters or pool water
17 samples to be collected, that they should contact us and
18 then we would contact SRB, because we weren't clear at the
19 time whether or not SRB had the intention to keep on with
20 third-party monitoring. It wasn't clear. And we're still
21 really not clear how they intend to do the third-party
22 monitoring and we haven't really gotten a detailed
23 response to that.

24 The other things I'd like to mention are
25 there has been a considerable reference to residential

1 wells not being used for drinking water consumption, and
2 that's simply not true.

3 Mr. Yuill who is not here today, he's too
4 ill, he really sends his regrets that he wasn't here, he
5 feels strongly about this issue -- does consume from his
6 well water, as did his spouse, Mary. They use it to
7 irrigate their garden.

8 Also, Mr. and Mrs. Peever (phonetic) and
9 there is a number of other wells I have -- I wrote them
10 down. Sorry. The Boundary Road business well -- used to
11 consume their drinking water. They used to make coffee
12 every morning from their contaminated well and now SRB
13 supplies them with bottled drinking water. They still use
14 the truck wash to wash their vehicles.

15 There is another business on Boundary Road.
16 They bring in their own bottled water now because of the
17 well contamination. There is two other homes on Boundary
18 Road that continue to use their drinking water from their
19 well. They don't have any other source of water; and the
20 other two homes that are located on Mud Lake Road as well.

21 And Mr. Levesque made a reference to us
22 doing a walkabout of the neighbourhood. Well, that
23 walkabout was actually a good thing because we identified
24 two residential wells that SRB hadn't been monitoring
25 previous to that and we contacted Mr. Levesque to do well

1 water sampling of those wells and they are not in his data
2 today. We're happy to report that they were lower levels.

3 The other concerns; that the SRB and CNSC
4 have not collected data on the depths of the residential
5 wells nor on soil concentrations concerns us and that they
6 are making model predictions of the well water and making
7 statements that it's not due to a plume, a contamination
8 plume, and they really have no basis for that statement.

9 We have concerns about the licence
10 condition handbook, how it can be modified without a public
11 hearing, and we really want some sort of a guarantee that
12 that is not going to occur and that the public would have
13 the opportunity to intervene if the licence condition
14 handbook was to be modified for any reason.

15 Mr. Elder's comments about using a
16 licensing handbook to prevent a barrier to improving
17 themselves, that's not been our experience with SRB. In
18 fact, we found that rather than use these loopholes as a
19 barrier to improving themselves, they use them as an
20 incentive -- as an avenue to relax controls.

21 The other concern is that Stephane Levesque
22 hand-delivered letters to people of the public and we have
23 a little bit of a concern about issues there where people
24 intervene, hoping to bring matters to the attention of the
25 CNSC and Stephane uses that as a personal data collection

1 device to put out his information brochures, which is
2 another topic of concern. We don't have time for it
3 today.

4 The First Six Years is a non-profit
5 grassroots organization. Our mandate is the promotion of
6 optimal social, physical and environmental conditions for
7 child development. Our organization is comprised of
8 members of the public with various backgrounds and
9 interests in promoting health.

10 I just want to bring to your attention the
11 Tritium Studies Report. When we are looking at it we are
12 going to be looking at particular attention -- that
13 they're looking at child development, respiratory systems,
14 reproductive system, nervous system, cardiovascular
15 system, endocrine system, general growth and cancer.
16 These are areas of concern. When you're looking at a
17 toxin such as tritium you should really try and encompass
18 all those areas.

19 Today, I'd like to review with you briefly
20 the Nuclear Substances and Radiation Devices Regulations
21 and how recent amendments to the regulations provide a
22 globally-competitive advantage to companies like SRB who
23 make a profit from the import and disposal of expired
24 devices to the detriment of public health and the
25 environment, and how Canada's current regulatory framework

1 is not satisfactory for controlling tritium exposures from
2 SRB or for protecting the public.

3 A detailed review of the NSRD Regulations
4 has been provided previously. I refer Commission members
5 to the original and still relevant November 2006
6 intervention by the Concerned Citizens of Renfrew County,
7 as well as the more recent analyses summarized today by
8 Canadian Environmental Law Association legal counsel, Mr.
9 Joseph Castrilli.

10 If you will now kindly refer to SRB
11 Supplemental CMD 10-H5.1C, Section 3, "Disposal of Expired
12 Products", on page 3 you find reference to the Nuclear
13 Substances and Radiation Devices Regulations wherein SRB
14 lists the six criteria which would allow a person to
15 abandon a tritium-containing self-luminescent device.

16 As you can see, two of these criteria
17 relate to technical design and sturdiness of the sign
18 itself. One pertains to a labelling requirement. The
19 remaining three criteria pertain to the substance and
20 measures of radioactivity.

21 In other words, to legally abandon the
22 tritium-containing light device in Canada, it must be of
23 sturdy design, have a label describing its contents,
24 expiry date and date of manufacture, and it must contain
25 no more than 925 gigabecquerels of tritium gas and no more

1 than 1 percent tritium oxide per volume per glass tube.

2 The inherent weaknesses of these
3 regulations in protecting the public and the environment
4 are obvious.

5 For one, estimating the amount of tritium
6 in expired lights is difficult as amounts vary depending
7 on the manufactured date, its size and the original
8 tritium content.

9 Secondly, levels of tritium oxide, which is
10 many times more hazardous than tritium gas, steadily
11 increase during a lifetime of light devices. Tritium
12 oxide is absorbed on the glass, making discarded signs
13 particularly efficient at leaching tritium into
14 groundwater.

15 Thirdly, light sources typically contain 1
16 terabecquerel of tritium and are generally disposed of
17 after 10 to 15 years as their brightness subsides.

18 Note however that the regulatory limit of
19 925 Gigabecquerels is very close to the amount of tritium
20 one would expect to find in a light source after just one
21 year of natural decay.

22 We see this regulatory limit of 925
23 Gigabecquerel's as another example of a standard designed
24 to keep companies in compliance with regulations rather
25 than one based on a careful review of health and

1 environmental considerations.

2 The First Six Years tabled these concerns,
3 among others, in a November 2007 letter to the
4 International Atomic Energy Agency. A copy of this letter
5 was provided to the CNSC.

6 We expected at least an acknowledgement of
7 our concerns. What we didn't expect was a weakening of
8 the regulations pertaining to mandatory recall procedures
9 and waste management guidelines.

10 The CNSC Annual Report for 2007-8 under the
11 heading "Stakeholder Relation" states:

12 "Canadian confidence in CNSC rests on
13 public understanding of its role and
14 responsibilities. CNSC consults
15 regularly with stakeholders and
16 community members, sharing information
17 about its activities and gathering
18 public input in order to develop and
19 maintain trust in its ability to
20 regulate effectively."

21 For the record, no one from the CNSC
22 contacted either The First Six Years or Concerned Citizens
23 of Renfrew County to invite our participation as
24 stakeholders regarding changes to the regulations.

25 Even though amendments to the NSRD

1 Regulations were made five months from the date of our
2 letter to the IAEA and copied to CNSC, we were never
3 alerted in any way to these proposed changes.

4 Wild Sales in Santa Fe, California
5 describes SRB's open return policy for expired light
6 sources as a valuable, environmentally friendly service;
7 no wonder. The U.S., U.K. and other countries require
8 disposal of expired tritium exit signs in a licensed
9 radioactive waste management facility or the return to the
10 manufacturer. Canada on the other hand allows expired
11 tritium light sources to be abandoned.

12 This gives SRB quite a competitive edge
13 worldwide, don't you think?

14 SRB has profited in the past from their
15 brisk trade in the importation of expired light sources.
16 In 2005, SRB applied for and was granted permission to
17 import 370 Petabecquerels of waste lights from China.
18 This outrageous amount for comparison is 10 times the
19 amount of tritium the AECL Tritium Lab processed in 2006
20 and is equal to the amount that the Darlington Tritium
21 Removal Facility processed that same year.

22 Canada needs to put a stop to this open
23 return policy.

24 There is no justification for continued use
25 of tritium-filled self-luminous devices when other less

1 toxic alternatives are available.

2 In addition to their health, national
3 security and environmental risks, tritium exit signs
4 provide inferior illumination in the event of an
5 emergency.

6 SRB presently has 149 boxes of expired
7 signs in storage at their facility. Without any type of
8 regulatory incentive, which management do you think SRB is
9 likely to consider: disposal to a licensed nuclear waste
10 facility, which is costly; reclamation, less costly as
11 tritium gas is evacuated through the stacks?

12 And I hope the Commission is clear that SRB
13 does not actually reclaim tritium. They have no system in
14 place to capture it once it's released after it's crushed,
15 or abandonment, possibly. Who is to know?

16 SRB admits -- page 4 of their supplemental
17 CMD -- that they looked at providing the Commission with a
18 ratio on the number of tubes that are reused to disposed
19 but the data did not lend itself to developing an overall
20 ratio as product types and categories yield much different
21 results.

22 They further identified that product types
23 and categories have been disposed in an unpredictable
24 manner based on military and aerospace budgets.

25 Clearly, SRB does not have qualified staff

1 with expertise in radiation protection and they have not
2 demonstrated an ability to administer an incentive-driven
3 program that encourages the safe return and disposal of
4 expired tritium light sources to a licensed nuclear waste
5 facility.

6 And Canada lacks the technical capacity and
7 regulatory structure needed to manage companies, such as
8 SRB, that import radioactive tritium waste.

9 Canada has not, for example, undertaken any
10 studies of groundwater tritium concentrations in landfills
11 to determine the impact of their abandonment policy.

12 It is unknown how many signs make their way
13 to Canada and then to municipal landfills.

14 For these reasons, it is our strongly held
15 opinion that SRB should not be allowed to produce, export
16 or accept the return of expired tritium light sources.
17 They should not be granted a licence.

18 **THE CHAIRMAN:** Thank you.

19 The floor is open.

20 Mr. Graham?

21 **MEMBER GRAHAM:** Question I have to CNSC
22 staff regarding some of the intervenor's statements and
23 especially signs going to landfills.

24 My understanding in reading the documents
25 and so on that SRBT, if the signs come back and if they're

1 doing anything, those signs don't go to landfills. That's
2 not permitted in the licence. Is that not correct?

3 **MR. ELDER:** Just to clarify, actually it's
4 in our CMD of -- in the regulations by exemption, in
5 Section 9 of it. It's an exemption for end-user licensing
6 or disposal. It does not apply to distributors or
7 manufacturers of tritium light supplies.

8 So SRBT is not allowed to dispose of them.

9 **MEMBER GRAHAM:** No. The other one was with
10 regard to -- the comment was that the 149 boxes of signs,
11 they can either go the costly route of disposing those
12 with AECL, to AECL; either that or another type of
13 disposal as designated by CNSC are the only places that
14 those can be disposed of. Is that not correct?

15 **MR. ELDER:** There were a succession of
16 three options. There are actually only two options. You
17 go to a licensed waste site or they can ship them to a
18 licensed ---

19 **MEMBER GRAHAM:** In another country?

20 **MR. ELDER:** Somewhere else. Yes.

21 **MEMBER GRAHAM:** Mr. Levesque?

22 **MR. LEVESQUE:** Stephane Levesque, for the
23 record.

24 Or reuse the light sources because it
25 doesn't mean that the light sources aren't useable for a

1 tritium exit sign. It has to meet a certain building code
2 requirement but they're not useable other applications.
3 We have used a number of other light sources for their
4 applications.

5 **MEMBER GRAHAM:** But they're reused and used
6 in accordance with the licence conditions. Is that not
7 correct?

8 And then the other comment was that Canada
9 has no -- CNSC has no policy. I thought in our Licence
10 Handbook and so on that we are pretty specific in how the
11 process is carried out, whether they're reusing these but
12 if there's any waste that has to go -- because I asked in
13 Day One -- that does have to go to a licensed site for
14 disposal.

15 The only thing that can go to landfills are
16 the things that go to landfills normally that are shoe
17 covers, coveralls, gloves, dust, dustpans, material and so
18 on. Is that not correct?

19 I guess statements were made on the record
20 and if they're correct, we have concerns but would someone
21 clarify what is correct and what is not?

22 **MR. ELDER:** Your understanding is correct
23 on what they're allowed to send. I mean, again, there are
24 limits. It's very clear. I'll state again, the
25 exemptions that allow someone to dispose in a landfill do

1 not apply to a licensee like SRBT.

2 So if they imported, they are not allowed
3 to send it to landfill. They must -- it must remain under
4 a licence and go to a licensed facility -- well, licensed
5 facility ---

6 **MEMBER GRAHAM:** Or reused or sent it to
7 another facility.

8 **MR. ELDER:** Licensed facility of one sort
9 or another. It could be a waste facility. It could be
10 for reuse or it could be to a place where that would
11 actually recover the tritium.

12 **MS. O'GRADY:** Sir, clearly there's a profit
13 to be made in the return of lights. The question is, how
14 does SRB make the profit and it's not by sending it to a
15 licensed nuclear waste facility which is very costly.
16 They are using the other option which is reclamation,
17 which is crushing, which is sending the tritium up the
18 stack into the Pembroke atmosphere and then taking the
19 less contaminated waste and then trying to pass it off as
20 they dilute it with other less contaminated waste to a
21 landfill.

22 **MEMBER GRAHAM:** Well, unless I'm missing
23 something, that's not the process that I understand.

24 So would someone, for the record, tell us
25 how? You bring a light source back. If it is

1 reclaimable, you use it and make it into something else
2 but you don't just crush it and send it off to a landfill
3 or at least that's not what we've been told in the last
4 two days here.

5 So would someone clarify exactly what the
6 process is with regard to some of these materials that
7 come back?

8 **MR. LEVESQUE:** Stephane Levesque, for the
9 record.

10 You're exactly correct, is what we do is we
11 take the light sources back, we either reuse them for
12 another application or we dispose of them to a licensed
13 waste facility. They are not crushed. They are not
14 released to the environment. They are not reprocessed in
15 some way, other than being used in new products.

16 **MEMBER GRAHAM:** The reprocessing for a new
17 device that you're going to resell, that is done in
18 accordance with the licence, is it, and the releases of
19 tritium and so on are to be followed as per licence
20 handbook. Is that correct?

21 And I guess CNSC staff should answer that
22 for me.

23 **MR. ELDER:** Yes, those are defined in the
24 licence and then detailed in the handbook in terms of our
25 expectations for how the licence is to be met.

1 **THE CHAIRMAN:** Mr. Barnes?

2 **MEMBER BARNES:** Just to follow up on that
3 from a different angle. I have no idea how big a box is.
4 Obviously 149 is quite a substantial amount and I don't
5 know how that varies over time, whether that's a peak or
6 whether it's normal, whatever.

7 But if I combine that with the other aspect
8 of the intervenor's comments and this is under the
9 contaminated used fuel pump where it says that SRB,
10 although not licensed to sell waste, has had on site for
11 at least five years 11 - 70 litres steel drums containing
12 highly-contaminated used oil, high-vacuum pumps and so on.

13 Could I ask staff, is this a potential
14 hazard if there was a fire on the facility, the boxes of
15 tritium lights, as well as this oil in drums?

16 **MR. ELDER:** We have done a thorough review
17 of SRBT's fire protection program and it does take into
18 consideration all the hazards that are on the site. So,
19 you know, there are special arrangements in places.

20 I'll give you more concrete -- as said, the
21 review of the fire protection program looks at all the
22 hazards that are on the site and we've judged that program
23 to be satisfactory.

24 So it does take into consideration what is
25 currently stored and what they're allowed to store, how

1 they're allowed to store it. There are special
2 arrangements on storing of combustible materials and how
3 you arrange them, how there will be separated sprinkler
4 systems. That's all been looked at and as we confirmed,
5 the Pembroke Fire Department is fully aware of the hazards
6 that are on that site.

7 **MEMBER BARNES:** So if there was a fire, all
8 those 149 boxes of lights would burst and release tritium
9 to the atmosphere, so it would not be an issue for the
10 fire people putting out the fire, as well as the people
11 around.

12 **MR. ELDER:** That is one of the -- in terms
13 of the safety analysis for this facility, that is one of
14 the worst-case scenarios for the facility. So it is fully
15 analyzed in terms of the consequences and no, it does not
16 require -- it does not lead to a significant dose to the
17 workers inside the plant or someone having to put out the
18 fire.

19 **MEMBER BARNES:** And is there a limit on the
20 number of boxes that the licensee can host at the
21 facility?

22 **MR. ELDER:** The limit on the facility is on
23 the total inventory of tritium, so in all forms; not
24 necessarily in the boxes but all forms of tritium.

25 **MEMBER BARNES:** Okay. Thanks.

1 **THE CHAIRMAN:** Why do you keep the oil?
2 What is this oil from and why do you keep it in storage?

3 **MR. LEVESQUE:** Stephane Levesque, for the
4 record.

5 I would like to maybe provide additional
6 information on that and a lot of other matters on the
7 waste.

8 First, when Ashley and I responded to The
9 First Six Years, to Ms. O'Grady and their letter, which
10 I've included in Appendix 8 of your submission, where I
11 talk about the contaminated used pump oil on page 2 of
12 Appendix 8, why I say the waste that you're referring to
13 is not contaminated used pump oil but it's used vacuum
14 pumps that have been drained of their oil.

15 So we're not actually storing any pump oil
16 right now. We don't have any on site. We have pumps that
17 used to contain pump oil and they have been drained. So I
18 think that's an important point.

19 **MS. O'GRADY:** Mr. Levesque, in your
20 Compliance Report in that table, you have a reference to
21 solidified pump oil, and on Table 2, on page 8 I believe
22 of your Compliance Report.

23 **MR. LEVESQUE:** I can get the Annual
24 Compliance Report and review it but the information is
25 being reported the same way all along. Maybe there was a

1 misunderstanding but in the letter I definitely clarified
2 it to Ms. O'Grady, but I'll look at the Annual Compliance
3 Report as Table 2. Which page?

4 **MS. O'GRADY:** Whichever letter it is that
5 you responded to me in your supplemental.

6 **MR. LEVESQUE:** Okay.

7 **THE CHAIRMAN:** Anybody else wants to say
8 something about this?

9 **MEMBER McDILL:** Thank you. I have two
10 questions.

11 One is a clarification just so that it's
12 said again and clear. On page 4 of Ms. O'Grady's
13 submission 7A, there's a statement with respect to the
14 licence condition handbook and it says:

15 "Unlike licence conditions, SRB or
16 CNSC staff can request amendments to
17 the licence handbook conditions
18 without need for formal public
19 hearings."

20 Staff, address that, please?

21 **MR. ELDER:** That is correct in terms of the
22 process on their licence condition handbook, as long as
23 what's in the handbook is still compliant with what's in
24 the licence. It could be changed at the staff level.

25 This approach has been discussed with the

1 Commission, numbers, location but as we noted in our
2 recommendation that we are recommending that there be
3 annual reports from SRBT on the environmental monitoring.

4 We also noted in Day One I believe we
5 committed to do an annual reports on changes and present
6 those to the handbook.

7 **MEMBER McDILL:** And my other question is
8 with respect to a comment on the financial incentive for
9 the CNSC to issue companies a processing licence.

10 Maybe I'd direct that to the chair of the
11 staff, do we have a financial incentive to issue licences?

12 **THE CHAIRMAN:** Well, we are on cost
13 recovery but if we -- if the operation stops, the activity
14 stops. So that's the law of the land so to speak.

15 There is -- I would not call this an
16 incentive. It's just ability to do the work for staff.
17 It is definitely not an incentive and the funds for
18 decommissioning, just as an aside, it's not funds that are
19 available to the government. It's a fund that's available
20 for disposition and decommissioning.

21 It has to be available when required but it
22 is not something that the government receives.

23 **MEMBER McDILL:** So my question then to Ms.
24 O'Grady, does that help? Do those two answers help with
25 respect to the financial incentive and the handbook?

1 **MS. O'GRADY:** There's something that we
2 can't understand and that is every hearing, SRB gets
3 support from the CNSC staff as if they didn't have any
4 history of bad behaviour. It's as if they have forgotten
5 everything and we know that SRB at every licensing -- re-
6 licensing opportunity tries to remove some of the
7 conditions such as third party environmental monitoring.

8 They tried to not pay into their
9 decommissioning fund or try not to pay into the cost-
10 recovery fund or they try to dispose of their waste as
11 many ways free as possible such as into the sewer system
12 or through their stacks by the crushing of expired light
13 devices, that sort of thing.

14 So we know that the CNSC assists them in
15 this. There's just something that doesn't sit right with
16 us. We can't figure out why they get such great support
17 from the CNSC staff. It doesn't make any sense.

18 So there is some sort of -- some sort of
19 connection there that we just aren't getting and we're
20 thinking maybe it was the cost-recovery fee and if you are
21 stating that that doesn't even come into your coffers,
22 then there is something else. There is something there
23 that we are not getting the full picture on.

24 **THE CHAIRMAN:** Mr. Graham?

25 **MEMBER GRAHAM:** Well, Mr. Chair, just for

1 the record, decommissioning funds are not something that
2 have always been in existence at CNSC.

3 Under the new legislation, all facilities
4 have to start putting up decommissioning funds and not
5 every facility and SRBT I don't believe, if I'm correct,
6 is alone in this, that we have given some companies time
7 to establish a fund. SRBT, as a licence condition of the
8 last licence, were given time to start accumulating a
9 fund. We get a report at every meeting if a payment has
10 been made and I believe that's been happening and they're
11 working -- but they're not being treated any differently
12 than many other companies that are of a smaller nature
13 that have been able to afford to pop the money right at
14 the start.

15 This Commission spent a lot of time with
16 SRBT and the fact that they were out of production for a
17 number of months, if not for a period of time when they
18 weren't meeting the conditions of the licence, so I don't
19 believe, as a Commissioner, that we have given them any
20 special preference that we have given any other licensee.

21 As for cost recovery, for the benefit of
22 the intervenors -- and I say that in plural -- when a
23 licensee applies to come before the Commission they have
24 to pay certain expenses in applying for the licence, and
25 that is in the cost recovery part, so we do not assist

1 them or any other licensee in providing -- it's not a free
2 ride. I guess there's two funds that they have to pay
3 towards. They got behind when they were shut down in the
4 cost recovery.

5 They're, I believe, to date on that, if I'm
6 correct -- to CNSC staff -- up-to-date with their
7 commitments and I asked this morning if the 2014 date
8 would be met and so on with regard to bringing the
9 decommissioning fund up to where it's supposed to be.

10 You're reviewing that in 2011 and you're
11 also -- if it has increased then it's going to be parked.
12 You'll be back to the Commission on that. So in every
13 step of the way you're before the Commission with regard
14 to cost recovery and decommissioning, so they don't get a
15 free ride.

16 To my knowledge I don't believe that can be
17 defined as a free ride because every licensee coming
18 before us has to pay their way as they go along, and the
19 costs of preparing a licence and issuing a licence. Is
20 that not correct, Mr. Chair?

21 **THE CHAIRMAN:** Absolutely.

22 I must tell you also that I take exception
23 with some of the comments you make. In fact, just to
24 remind you that it was the Commission who shut them down
25 and our staff are under absolute instruction to make sure

1 that when they come in front of us they are presenting
2 their opinion, professional opinion, about whether the
3 proposal being in front of us has the merit and it has the
4 proposal behind it to make sure that as much as a safe
5 operation as we can actually get is being done and getting
6 approved.

7 So I take exception with the insinuation
8 there is some system of coziness between the proponent and
9 the licensees. We will not stand for that in any case;
10 not only in SRB -- in any one of our stakeholders. That's
11 the independence of the regulator.

12 I'd also like to remind you that every
13 regulator which is a government regulator has got to get
14 some funds from somebody. It's normally the taxpayer and
15 here it is that we have cost recovery procedures that the
16 proponent pay for the business. That's the way the
17 operation operates legislatively in practically the whole
18 -- for NEB and for CRTC and for all those regulators that
19 the government owns.

20 Anyhow, I think we've been diverting the
21 procedure. Dr. Barriault.

22 **MEMBER BARRIAULT:** Merci, Monsieur le
23 Président.

24 I've got a problem really, and the problem
25 I have is that there seems to be a breakdown in

1 communications.

2 You know, we talk about contaminated used
3 pump oil. It doesn't exist, apparently. We talk about
4 reclamation procedure where they crush things and throw
5 them out the stack. Apparently this doesn't happen. I
6 don't know where this breakdown in communication comes
7 from. Either somebody is not listening or not hearing or
8 the information is not being transmitted. So I don't know
9 where it stands. Maybe you can clarify some of this for
10 me. Start with SRB if you want to.

11 **MR. LEVESQUE:** Stephane Levesque, for the
12 record.

13 I think we've been able to communicate to
14 staff. I think staff is able to understand. I think most
15 members of the public that we speak to understand. You
16 see my written submissions. You see what's written there.
17 You see that I'm saying it's not contaminated pump oil.
18 You see that I clearly said we're not using reclamation.

19 I know that it's not an easy subject to
20 grasp. I know there's a lot to know, but we do provide
21 the information to the public and there's a lot of members
22 of the public out there who understand. There's a lot of
23 members of staff who understand and I think a lot of you
24 understand what we're saying.

25 So sometimes it's not just that information

1 maybe, or a lack of communication. It's maybe a refusal
2 to believe, and I can't control that. All I can do is
3 report the information the best that I can in the most
4 respectful way that I can, and that's what I think I've
5 tried to do here by my submissions and I hope you can see
6 that.

7 **THE CHAIRMAN:** Can I jump in here?

8 It's one thing to give us, to give to staff
9 the information. I think what we were looking at always
10 is the proactive disclosure concept where you put as much
11 information, readily digestible to the public, to your
12 community, and I just wonder whether you will have to
13 review whether you can make it easier to digest, more
14 readily available in the form that people can actually go
15 on your website and understand what's going on, on a maybe
16 more frequent timely way, rather than worry about annual
17 compliance or reports to the Commission.

18 **MR. LEVESQUE:** Stephane Levesque, for the
19 record.

20 I take your comment and I think we've done
21 that. I think that if you look at -- and a good exercise
22 is to look at our website. I think that if you look at
23 the -- I just looked earlier. The 2000 Annual Compliance
24 Report is the first report that we loaded on the website
25 and I believe it was less than 10 pages, and now we're

1 into reports that are 200 pages down to 2009.

2 We on the website have a specific section
3 on our quarterly reports and we report shortly after the
4 quarterly report is done. All our results of the
5 environment -- I think that if you look at Ms. O'Grady
6 herself. She came to us prior to the hearing. She made,
7 within the space of about 20 days, nine written requests
8 for information. Within 3.11 days -- I've written it in
9 my submission -- we submitted the information and we
10 copied CNSC staff.

11 We are going above and beyond what I've
12 seen any other licensee do, and I think you can see that
13 in the 39 written submissions that we've sent to the
14 public. We're inviting people in, and most people that
15 we've talked -- and I'm glad that I went door to door
16 because I got a lot of positive feedback where people
17 said, "Now that I've got your information, great. I'm
18 happy that you came because we were told that this was
19 mysterious; we were told that this was dangerous; we were
20 told that you were lying; we were told that you could not
21 be trusted".

22 At the end of the day, all I can do is
23 report the information and, you're right, we can always do
24 better. We're always trying to do better but there's so
25 much we can do.

1 **THE CHAIRMAN:** Dr. Barriault?

2 **MEMBER BARRIAULT:** Ms. O'Grady, do you care
3 to comment on this statement really and explain what's
4 going on, why the information is different?

5 **MS. O'GRADY:** Thank you.

6 If you could just ask Mr. Levesque how they
7 reclaim? They do not reclaim tritium. They might have
8 started when they brought that piece of equipment over
9 from the U.K. in the early -- I think it was 1995 but
10 after that it became oxidized ---

11 **MEMBER BARRIAULT:** I'm sorry, I'm talking
12 about now.

13 **MS. O'GRADY:** But they still use that word
14 "reclamation". They're not reclamating [sic]. It's not a
15 matter of not explaining adequately to the public; they
16 are not giving you the full picture. They are not
17 reclaiming tritium. They are not capturing tritium on a
18 scavenger or a getter bed. They are do not doing that.

19 In fact, when the CNSC staff at one time
20 did request a visit by Walter Shmayda to go and
21 investigate how they are running their operation, I guess
22 to investigate why the releases were so high, SRB refused
23 to allow him access to their facility. I mean he couldn't
24 get in, you know, past that point because they've claimed
25 proprietary issues. I don't see that addressed here at

1 all today. I still see CNSC staff using that word
2 "reclamation".

3 I'm quite concerned that SRB wants to
4 continue to reclaim tritium without the expertise to do
5 that, without the proper qualified staff. There is nobody
6 there that's ever taken a radiation ---

7 **THE CHAIRMAN:** Sorry to interrupt you, but
8 we're still going around. You claim that they're not
9 doing reclamation. So do they. You agree. They're
10 saying they're not reclaiming. What is it we're missing
11 here?

12 **MS. O'GRADY:** They were never reclaiming
13 tritium, maybe a small time until they actually oxidized
14 their bed and wrecked it and had to dispose of it. They
15 are not capturing tritium.

16 **THE CHAIRMAN:** Fine, so they're not
17 reclaiming. Everybody agrees. What are we disagreeing
18 on?

19 **MS. O'GRADY:** That's why our releases are
20 so high.

21 **THE CHAIRMAN:** I really am missing
22 something which is critical here. I think they've agreed
23 that they're not reclaiming in a sense of opening up the
24 tube, breaking it up and trying to get the tritium.
25 They're not doing it. They agreed that they're not doing

1 it. In fact, they are prohibited from doing it right now.

2 **MS. O'GRADY:** They never were reclaiming
3 tritium. They were never capturing that tritium and
4 recycling it ---

5 **MEMBER BARRIAULT:** You are saying -- sorry
6 ---

7 **THE CHAIRMAN:** Okay, so they were never to
8 -- they're never doing it and they continue to never do it
9 for now. So what is the debate that we're having, because
10 you consider it to be a very dangerous process; I think
11 staff is saying the same thing. If you actually want to
12 get into reclamation, you'll have to come in front of us
13 and get a different licence.

14 So everybody is in agreement. What is it
15 we disagree on?

16 **MS. O'GRADY:** They never had it in their
17 licence they could reclaim tritium, but they never were
18 actually recapturing tritium after they had crushed it.
19 It's in our Pembroke environment, in the soil, in that
20 nice graph that you saw Anna Tilman do, that nice orange
21 graph that shows the half-lives continuing. That's the
22 reclamation; it's in our environment, right there, because
23 of that, because it's released unmitigated into their
24 stack. That is what's happened. There is nothing
25 capturing, as opposed to the stack.

1 **THE CHAIRMAN:** But that's not the part of
2 the reclamation that we are talking about.

3 **MS. O'GRADY:** What they want to do ---

4 **THE CHAIRMAN:** The releases were from the
5 other processes that were -- if I understand correctly, my
6 -- staff, can you help us. Maybe you understand what the
7 dilemma of understanding here.

8 **MR. ELDER:** There's -- I gotta say, I'm not
9 sure that I fully understand with regards to this.

10 In terms of what you call reclamation or
11 whatever, they're a unit that would take these things and
12 crush it, okay?

13 They will not -- that what's not been used
14 has not been used since they were shut down in 2006.

15 **THE CHAIRMAN:** Did they use it ever?

16 **MR. ELDER:** They did, yes. It was used,
17 yes. And our view is that it was contributor to the
18 releases, but it's not -- our calculations were between 10
19 and 15 percent of the releases.

20 There were a lot of other practices that
21 they have improved to release the releases. So they've
22 been operating, producing the tritium signs since under
23 the current licence, since 2008 and living within a much
24 stricter limit. So our viewpoint has been -- shown they
25 can live within that much stricter limit.

1 That does not include anything that you
2 would call like reclamation or breaking up of tritium
3 glass; that's not allowed. Clearly, we monitor, and for
4 that unit there, it's disconnected, and we were very clear
5 this morning that our view is that would require a
6 complete safety assessment, engineering assessment and a
7 decision by the Commission before you would be allowed to
8 use such a piece of equipment.

9 I think the question that Ms. O'Grady has
10 is what do they do and what's the incentive for SRBT to
11 take these signs back; if they have to send them to a
12 waste facility or they send them to South Africa for
13 capturing the tritium there.

14 I think that's the question she would like
15 Mr. Levesque to answer.

16 **THE CHAIRMAN:** Again, I thought -- we've
17 got to move on. I thought that that was unsafe because
18 he's taking it back, so he can make a new sale. That's
19 the way I understood it and if he can salvage some parts
20 of that without breaking the glass, so better. If not, he
21 just dumps it into licensed -- I trying to repeat all the
22 things I heard -- to some licensed facility and at least
23 he is trying to make a sale to the people, you know, he
24 returned it from.

25 That was my understanding of the incentive.

1 **MS. O'GRADY:** Mr. Binder, this waste isn't
2 even making it to a licensed waste facility. If we would
3 have had Valence here today, we would have showed you the
4 drums, drums upon drums, upon drums stacked in their
5 fenced in area at the back. They're not sending it to a
6 licensed waste facility. It has been sitting there, some
7 of it, for five years or maybe longer.

8 **MEMBER McDILL:** What's in the drums?

9 **MR. LEVESQUE:** Stephane Levesque, for the
10 record.

11 I'm getting a little annoyed here because
12 the -- when I looked at the presentation from Ms. Valence
13 Young, I saw a picture of our empty drums, who by the way
14 have a sticker on them for people that look at them close
15 that says "This drum is empty". And we store them in our
16 fenced compound at the back along with some other wastes;
17 that's the shoe covers, the gloves, the jackets that are
18 on another end of the compound that are labelled saying
19 that there's radioactive material in them with tarps on
20 them.

21 We do not store crushed glass in the back
22 compound. We do not get rid of crushed glass in landfill.
23 We have never done it. We take light sources back, used,
24 again to try to make a resale or we reuse them in our
25 product. That's it.

1 There's nothing underhanded going on.
2 We've represented that to everyone in the public. A lot
3 of people have supported us, understand what we do; the
4 staff too. I think you do as well.

5 **THE CHAIRMAN:** Okay. Dr. Barriault, last
6 question.

7 **MEMBER BARRIAULT:** No. No further
8 questions. Thank you, Mr. Chairman.

9 **THE CHAIRMAN:** Any other last burning
10 question?

11 Thank you.

12 Do you want to say a final word?

13 **MS. TILMAN:** I want to reclaim a minute.

14 I think the issue is you have to have a
15 clear definition of reclamation in whatever context it's
16 used, and I think we heard about it being used in
17 different contexts.

18 In fact, I would say that the staff has to
19 look at that analysis that -- the activities under
20 "Reclamation" led to an extra 10 to 15 percent releases.
21 I would question that.

22 I think that the releases were so huge at
23 that time when they were doing the crushing and so on and
24 Ms. O'Grady contends that this resulted not in capturing
25 the tritium but in releasing it to the environment.

1 I think that's the issue; so it's the term
2 "were"; so they didn't get it back to reuse. Most of it
3 went out to the environment.

4 So I think you need a clear definition of
5 reclamation. I think the staff should reassess, if need
6 be, what percent of those emissions in the earlier years
7 were due to this activity compared to the activity when
8 they don't do it. Why does a facility go down to 40
9 terabecquerels from 12,000 or whatever in a time, what
10 gives, what's the equation there, what's the balance?
11 What does it cost?

12 **THE CHAIRMAN:** Okay. Thank you very much.

13 I think we better move on to the next
14 intervenor. I understand -- Marc, you are going to help
15 me on this?

16 **MR. LEBLANC:** Yes.

17 **THE CHAIRMAN:** I'm informed that Ms. Young
18 is not available to make an oral presentation. It will be
19 considered as a written submission.

20 Any particular question on that particular
21 submission?

22 **MEMBER GRAHAM:** The only question I had,
23 Mr. Chair, was the pictures and the ditch in Muskrat
24 River, Boundary Road, those pictures and so on. Is SRBT
25 responsible for those pipes and so on or is that a

1 municipal problem or so on?

2 And I just ask that question, is that a
3 responsibility of SRBT or is it something that the
4 municipality is not looking after? Broken pipes and so
5 on? River bank at Boundary Road bridge and ditch at
6 Muskrat River Boundary Road and so on.

7 A pretty messy looking area, and I'm just
8 wondering is that your responsibility in SRBT or is that
9 someone else's?

10 SRBT?

11 **MR. LEVESQUE:** Stephane Levesque, for the
12 record.

13 No, they're not our responsibility. All I
14 can say is we take samples upstream and downstream in the
15 Muskrat River of the water on a monthly basis when the
16 weather allows it.

17 But no, the pipes aren't our
18 responsibility.

19 **MEMBER GRAHAM:** Is that a municipal -- part
20 of the municipality?

21 **MR. LEVESQUE:** Stephane Levesque, for the
22 record.

23 Yes, it is.

24 **MEMBER GRAHAM:** Okay. Thank you.

25 **THE CHAIRMAN:** Sorry, just to clarify; on

1 page 1 of the first page, it says that, "Why haven't silt
2 samples been taken downstream in the Muskrat River?"

3 Did you say they are taking some -- is it
4 water or is it different between water and silt?

5 **MR. LEVESQUE:** Stephane Levesque, for the
6 record.

7 We've been taking for a number of years
8 now, water samples in the Muskrat River and we've
9 explained in our submission to Miss Young that if you can
10 basically use the concentrations in the Muskrat River, up
11 and downstream of the facility, which are very close to
12 the detection level, that you could basically, from that,
13 deduce what the levels and the sediment would be.

14 **THE CHAIRMAN:** Okay. Thank you.

15 I've also been informed that the submission
16 from the Council of Canadians is to be treated as a
17 written submission.

18 I guess, I don't know, they're running late
19 or -- they never came in, okay.

20 Questions on that particular submission?

21 Okay, consider it to be read.

22 The next one is an oral presentation by
23 Prevent Cancer Now from Mr. Mark MacKenzie.

24 The floor is yours.

25

1 **10-H5.44 / 10-H5.44A**

2 **Oral Presentation by**

3 **Prevent Cancer Now**

4
5 **MR. MacKENZIE:** Thank you, Mr. Chair and
6 Members of the Commission for this opportunity to address
7 you.

8 My name is Mark MacKenzie; I'm a board
9 member for Prevent Cancer Now.

10 Prevent Cancer Now is a national
11 organization dedicated to removing the preventable causes
12 of cancer from our everyday lives; date back to 2006 as an
13 organization. I've been on the board since 2007. I will
14 also reveal I was a Green Party of Ontario candidate in
15 Renfrew, Nipissing, Pembroke in 2007.

16 Prevent Cancer Now has intervened by letter
17 in the past. In 2008, we submitted a lengthy letter
18 identified as CMD 08-86.28. You have presumably read our
19 recent letter in which the points of this previous
20 submission were reiterated. All these points continue to
21 be relevant today -- as relevant today as they were at the
22 time that they were submitted.

23 As you are no doubt aware, this year marks
24 the 10th Anniversary of the Walkerton tragedy. This was a
25 tragedy caused by a failure on a number of levels and many

1 Pembroke residents are starting to feel a connection with
2 this event.

3 There were failures and lapses and a lack
4 of responsibility on the part of individual people and
5 there were also regulatory failures and lapses.

6 Most importantly, Walkerton was a tragedy
7 that could have been prevented. It involved poisoning the
8 community's water supply due to serious lapses of
9 responsibility, and it also involved innocent and
10 unwitting victims whose best interests were not being
11 served by those entrusted to manage that.

12 Members of Prevent Cancer Now share a
13 strong conviction that it is the duty now of all citizens
14 to direct their energies towards cancer prevention instead
15 of continuing to rely on costly analysis and ineffective
16 cleanups after the fact.

17 Agencies in positions of responsibility
18 must not forget their duty to take precautionary action
19 wherever possible to protect human health.

20 A timely recent event, for example, is the
21 release of the U.S. President's Cancer Panel Advisory
22 Report to U.S. President Barack Obama in which Dr. Leffall
23 and Professor Kripke have drawn the President's attention
24 to the fact that:

25 "The true burden of environmentally

1 induced cancer has been grossly
2 underestimated."

3 They also comment that:

4 "The American people, even before they
5 are born, are bombarded continually
6 with myriad culminations of these
7 dangerous exposures."

8 There is a Doctor Chris Busby of the U.K.
9 He is a chemical physics researcher and one of the U.K.'s
10 most learned experts on the effects of low-level
11 radiation, and I quote him.

12 "The problem with tritium is that it
13 is under-estimated as a hazard. As a
14 form of nitrogen it becomes very
15 easily incorporated into biological
16 molecules. The whole of life works on
17 exchangeable hydrogens but when
18 tritium decays, it becomes helium. So
19 any molecule that tritium was located
20 in would just collapse. This is a
21 method of amplifying its effect within
22 the body which is absolutely
23 monumental. The danger of tritium is
24 in its propensity to bind with organic
25 material when ingested, inhaled or

1 absorbed and so produce an internal
2 radiation."

3 This topic came up earlier about external
4 radiation. A nuclear physicist, Frank Barnaby points out
5 in response to a comment made by somebody else that the
6 resulting ex-radiation exposure will be virtually
7 indistinguishable from natural background radiation
8 levels, when they were talking about tritium.

9 Frank Barnaby points out that it's a wee
10 bit of a meaningless statement because background
11 radiation goes into your body from the outside. It's
12 external radiation.

13 The problem with tritium is that it may get
14 into the body through ingestion or inhalation and when in
15 the body the consequence may be quite serious and more
16 serious than authorities admit.

17 The entire energy of the electron gives off
18 -- is given off when tritium decays, according to Dr.
19 Barnaby and is absorbed in a very short distance, less
20 distance than a diameter of a DNA molecule.

21 Tritium being hydrogen may be taken up by
22 the DNA and then the radiation it gives off could age the
23 DNA molecule and produce either cancer in the individual
24 or genetic effect.

25 You could argue -- he goes on -- that high

1 energy radioactive decays are actually better because they
2 kill the cell outright and you don't get the cancer.
3 Tritium has this tiny energy, which will damage rather
4 than kill the cell. And of course cancer is your own
5 cells turning on yourself.

6 I'd like to point out as well that the
7 Federal Toxic Substance Management Policy introduced by
8 the federal government in 1995 takes a preventative and
9 precautionary approach to dealing with substances that
10 enter the environment that could harm the environment or
11 human health.

12 The key management objectives of this
13 policy are the virtual elimination from the environment of
14 toxic substances that result predominately from human
15 activity and that are persistent and bio-cumulative, which
16 is of course the case with tritium.

17 It also manages the other toxic substances
18 and substances of concern throughout their entire life
19 cycles to prevent or minimize the release into the
20 environment; and a toxic substance is defined under
21 Section 64 of CEPA 1999 as being a substance that
22 constitute or may constitute a danger in Canada to human
23 life or health.

24 As a Commission, you and your staff are
25 fully aware that tritium is an undisputed carcinogen.

1 Tritium cannot be filtered out of drinking water.

2 Women, children and developing foetuses are
3 at increased risk from tritium exposures.

4 Many in the scientific community now report
5 that tritium has been underestimated as a health hazard.

6 Health effects are now understood to be
7 chronic in nature, in that they occur over years and at -
8 even at comparable -- comparatively low levels of
9 exposure.

10 It has been well established that there's
11 no safe level of exposure to radiation, even the smallest
12 dose can contribute to cancer and other health effects,
13 according to the BEIR-VII report, which has been referred
14 to by others as well.

15 The U.S. Environmental Protection Agency
16 defines "safe" as zero known risk. The International
17 Joint Commission on the Great Lakes has recommended that
18 radionuclides with a half-life of greater than six months
19 be considered persistent toxic substances and work toward
20 virtual elimination from waste streams is important.

21 Contents of a single tritium exit sign, if
22 converted to the oxide form and inhaled would represent a
23 lethal dose of radiation. There are viable alternatives
24 to these tritium exit signs. Even Natural Resources
25 Canada recommends against the use of tritium.

1 Having read some -- through some of this
2 stuff myself for the first time is rather stunning to me
3 how a company can receive so many breaks, time and again,
4 after failing to meet so many and various requirements for
5 reporting and how it's conducting itself.

6 In view of the Prevent Cancer Now
7 coalition, our view is that it is clearly questionable for
8 the agency to continue to allow an unreliable company to
9 continue to operate when it's clear they cannot guarantee
10 zero emissions of tritium.

11 Is it right to allow this company to
12 release tritium contained effluent in the city's sewer
13 system, thereby offloading responsibility for the
14 company's waste to the City of Pembroke and its unwitting
15 taxpayers?

16 Is it proper to allow the company's tritium
17 contaminated effluent to be released to the Ottawa River,
18 thus rendering not just the citizens of Pembroke unwitting
19 recipients of tritium pollution but also the people down-
20 river who take their drinking water from the Ottawa River,
21 and all this is for 18 jobs?

22 In light of this Commission's previous
23 decisions with respect to SRB to allow it to continue to
24 operate, also -- certainly, it hasn't ruled in favour of
25 SRB at all times -- and although this Commission has the

1 word -- actual word "safety" in it, it is clear that this
2 Commission sees an implied economic mandate in its
3 decision making.

4 If the mandate of this Commission was truly
5 safety first, the answer would be clear, and that would
6 be, given that the track record of tritium and of this
7 company and the mounting evidence and the risks of tritium
8 is in our environment to human health, particularly that
9 to which the residents of Pembroke are exposed, then this
10 application should be denied.

11 The only justification, that I can see, is
12 an economic one, so I have a brief comment about that.
13 While on the surface this Commission has protected these
14 jobs at tremendous public expense, cost recovery or not,
15 granting this application will do Pembroke no favours.

16 The recent problems that the nuclear
17 industry have had, now well known across the province with
18 the rise in the incidence of cancer, with the public's
19 recent grassroots effort to eliminate the cosmetic use of
20 pesticides for the exact reasons that we are talking about
21 here, eliminating carcinogens from our everyday exposure,
22 continued operation of SRB will ultimately hurt Pembroke
23 as other businesses will shy away from setting up shop in
24 a city where there's a clear disregard for an obvious risk
25 to human health.

1 In the words of the Science for Peace
2 letter that has been submitted, scientific studies
3 continue to lower the levels of tritium considered to be
4 safe and yet Canadian levels remain at unconsciously high
5 levels.

6 It is certainly possible that Canada's
7 persistent evasion of these standards comes from
8 prioritizing business interests over public health and
9 over scientific fact.

10 Cancer takes away more productive years
11 than any other disease that we're faced with in society.
12 It is the leading cause of death of women in prime child-
13 bearing and child-rearing years. Surprising that we still
14 use the standard "man" as a measure of risk, forgetting
15 how much more complicated a woman's body is and it is of
16 course through a woman's body that our young are born.

17 I'm familiar with risk assessment with
18 respect to chemical exposure and I'm not surprised to read
19 again that this male prejudice is still inherent in
20 assessment of exposure to radiation. What is good for the
21 gander is not good for the goose.

22 As Dr. Sandra Steingraber says, author of
23 "Living Downstream", an ecologist look at cancer in the
24 environment, "A woman's body is a human being's first
25 environment. Whatever contaminants are in a woman's body

1 find their way into the next generation." I think there
2 is no better argument for the precautionary principle.

3 On behalf of Prevent Cancer Now, a national
4 cancer prevention coalition, we call on CNSC to implement
5 a real commitment to the precautionary principle. The
6 Canadian government has made a commitment to this
7 principle and its necessity in protecting human health.

8 We urge you to remove what is clearly a
9 preventable cause of cancer, trust the overwhelming and
10 increasing evidence against tritium, and truly rule on the
11 side of safety and human health first.

12 Thank you.

13 **THE CHAIRMAN:** Thank you.

14 The floor is open. Dr. McDill?

15 **MR. MACKENZIE:** I have a couple of
16 questions too, after, if I may.

17 **MEMBER McDILL:** Thank you.

18 I wonder if I could ask staff to indicate
19 what the critical pathway is with respect to tritium for
20 this facility in the calculation of dose; the critical
21 receptor.

22 **MR. ELDER:** Bert Theriault will answer that
23 question.

24 **MR. THERIAULT:** Thank you.

25 As the dose was calculated in the 2000

1 annual report by SRB, the majority of the dose is received
2 through drinking water, through drinking well water. For
3 the adult, it represents about 70 percent of the total
4 dose, infant about 83 percent, and the highest of the two
5 doses to the adult, which is .0056 millisieverts a year.

6 **MEMBER MCDILL:** And what is it for an
7 infant drinking all their formula from water; well water?

8 **MR. THERIAULT:** The total dose is .0053
9 millisieverts a year.

10 **MEMBER MCDILL:** Sorry, .005 millisieverts?

11 **MR. THERIAULT:** It's .0053 millisieverts a
12 year, yes.

13 **MEMBER MCDILL:** And one other question. If
14 one sign were to break, what is the total dose if someone
15 were sitting on top of it when it happened, for the sake
16 of argument?

17 **MR. ELDER:** I don't think we have the exact
18 calculation.

19 **MEMBER MCDILL:** Perhaps not, but the
20 comment was made.

21 **MR. ELDER:** I think we've done it in the
22 past, but I don't think we necessarily have it with us at
23 the table today. We can get back to the secretariat with
24 that.

25 **MEMBER MCDILL:** Maybe I could ask the

1 intervenor to repeat the statement that he made with
2 respect to the dose that would come from a single sign,
3 and I could ask SRBT to comment also.

4 **MR. MACKENZIE:** The information I have is
5 that the contents of a single tritium exit sign, if
6 converted to the oxide form and inhaled, would represent a
7 lethal dose of radiation.

8 **MEMBER McDILL:** So I'll get staff and SRBT
9 to comment on that.

10 **THE CHAIRMAN:** I think somebody in the
11 back.

12 **MR. BUNDY:** Kevn Bundy.

13 I can maybe offer something from history on
14 that because we had actually some use of tritium signs
15 that were used on a helicopter landing pad -- I think I've
16 told the story to the Commission before -- in a northern
17 First Nations community and some young adults, I guess
18 with nothing better to do, took some -- were interested in
19 the lights because they glowed in the dark, so they
20 actually broke through and took out one of the lights,
21 broke it open and played with it.

22 It was very serious. We had them in the
23 hospital and everything else, but they all survived and
24 there were no long-term effects. The concentration in
25 those would certainly be higher than what is in an exit

1 sign.

2 **THE CHAIRMAN:** Anybody else?

3 **MR. LEVESQUE:** Stephane Levesque, for the
4 record.

5 I think the important point that the
6 gentleman said for the intervention was if the contents
7 were entirely converted to oxide; that's pretty well
8 impossible for it to occur. We know that, based on our
9 calculation, if a regular 20-year tritium exit sign that
10 contains 20 curies is broken, with an average ventilation
11 in the room and an average-size room, that the dose to
12 that individual would be less than what the public dose
13 limit is.

14 **THE CHAIRMAN:** So 20 is -- what's a brand
15 new -- tritium content of a brand-new sign?

16 **MR. LEVESQUE:** Stephane Levesque, for the
17 record.

18 A brand-new sign that we approve for
19 building code -- to meet the building code requirement for
20 20 years would be approximately 20 curies content.

21 **THE CHAIRMAN:** If that gets released, what
22 will be the dosage?

23 **MR. LEVESQUE:** That's exactly what I was
24 saying. If that sign was entirely broken in an average-
25 size room with average ventilation, an individual would

1 have less than the annual public dose limit of one
2 millisievert as a dose.

3 **THE CHAIRMAN:** Thank you.

4 Rachel, you want to say something?

5 **MS. LANE:** Rachel Lane, for the record.

6 I would like to remind the Commission that
7 CNSC staff have over the last three years conducted a very
8 comprehensive report on the health effects dosimetry and
9 radiation protection of tritium. We have looked at
10 epidemiological studies and lab studies with respect to
11 tritium.

12 We have looked at workers, we have looked
13 at offsprings of workers and we have looked at members of
14 the public living near facilities with tritium, and we
15 have concluded that to date there is no evidence of raised
16 risk of any disease associated with tritium in past or at
17 current exposures; that's to workers and members of the
18 public.

19 Any adverse health effects due to tritium
20 exposure at past and current exposures in Canada are
21 highly unlikely.

22 Thank you.

23 **THE CHAIRMAN:** So to pursue this, Mr.
24 MacKenzie provided us with a lot of reading material and
25 made reference to a lot of -- kind of studies which he

1 claims point to things that are contrary to what you just
2 said. How would you explain that?

3 **MS. LANE:** A lot of the studies that were
4 highlighted by the intervenor, such as Dr. Busby, the
5 CERRIE Report, Comare, the KIKK study, the SSK work, the
6 AGIR work, and so on, are all within the report.

7 Thank you.

8 **THE CHAIRMAN:** Mr. MacKenzie, do you want
9 to ask a question?

10 **MR. MACKENZIE:** Sure, if I can just make a
11 general comment, pull back from a little bit. This is my
12 first time at an intervention. I did attend the tritium
13 workshop a year ago January but, as a citizen, I find it
14 quite -- a little bit disturbing that -- I'm speaking
15 merely on this side of the floor. I think the
16 Commissioners at the front have asked some very pointed
17 and difficult questions but it's difficult to distinguish
18 who is working for SRB and who is working for CNSC. It's
19 -- I must say that. It's almost interchangeable.

20 I have experienced this in the whole
21 pesticide thing too, that the regulators in the pesticide
22 industry in Ontario were turned into -- and just this is
23 my personal experience and opinion -- defenders of the
24 actual industry that they were regulating.

25 I've heard far more defence from CNSC

1 staff, almost 99:1 if you were to lay it out and rollback
2 the tape of what SRB is doing, than concern. In fact, one
3 person even projected that they have -- you know, that
4 they're confident that moving forward everything is going
5 to be fine. That doesn't sound the cautious approach that
6 a public servant should be having about activity that is
7 clearly risking human health and as far as the last
8 comments from the lady at the back, I think she's just out
9 on her own in terms of the direction the world was going.

10 The fact that there are so many different
11 standards in so many different countries, as was pointed
12 out in the CNSC staff report, is an indication to
13 reiterate something that Janet McNeil said before. I mean
14 we're looking at the same science and even the scientists
15 are disagreeing as to what it means. I understand it puts
16 you in a very difficult position as to what to believe.

17 But again I urge you as is laid out in the
18 Toxic Substances Management Policy, to use a precautionary
19 principle. There's enough evidence to show that the
20 tritium is just something that we shouldn't be putting out
21 in the environment.

22 **THE CHAIRMAN:** Mr. Harvey?

23 **MEMBER HARVEY:** Merci, Monsieur le
24 Président.

25 A question to Mr. MacKenzie. To what

1 extent your position, your conclusion and your request at
2 the end is based on the point of view that there shouldn't
3 be any releases -- that there's no safe level of
4 acceptance than whether then on the facts that have been
5 presented and the responses that have been given to your
6 question, to your point.

7 Because in the first submission here you
8 addressed to the staff, to the Commission, the base --
9 you've got 10, 11 points there in light of -- then you've
10 got a list of many of those points, if not all the points
11 that have been on the table today and have received some
12 responses.

13 Despite the fact that responses are given
14 and put on the table, that seems to -- that doesn't change
15 your point of view. So I would like you to comment on
16 that.

17 **MR. MacKENZIE:** No, I haven't heard
18 responses here from CNSC staff or SRB that I believe would
19 move us to change our view. That's all I can tell you.

20 We're trying to talk about 18 jobs. We're
21 talking about a business that Mr. Levesque time after time
22 has called himself a small business. He's just a -- he's
23 supposed to have some sympathy that he's having all this
24 regulation, you know, pushed down his throat. Boy of boy,
25 would I ever like to have a business where I've got one

1 person from my business supported by a minimum of nine
2 public servants cheering my business on.

3 I think, quite to the contrary, he's
4 receiving a tremendous amount of public support from the
5 taxpayer for his business and I think that this is a
6 risk/benefit analysis that you had to do.

7 The benefit -- if were talking about a
8 billion dollar business that was an economic driver for
9 eastern Ontario I think that would be a different
10 situation, but when you're talking about a small company,
11 that in his own words, I don't think the risk is worth it.

12 **THE CHAIRMAN:** You're misunderstanding our
13 mandate then. Our job here is not to protect jobs. Our
14 job is to whether an activity is within safety parameters
15 that we believe is adequate. And that's the issue here,
16 where the safety parameters that are being presented by
17 opposing views are within the particular parameters, are
18 we satisfied that what is being taken is safe. That's
19 really our job. It is not to protect the 18 jobs that are
20 on the table here.

21 **MR. MacKENZIE:** Well, I certainly respect
22 that and I appreciate that and this is why I use the term
23 "implied economic mandate" because again I've seen similar
24 sort of regulation happen with, as I say, pesticide
25 management regulatory agency.

1 I mean their similar mandate is to make
2 sure that, you know, people are exposed to safe levels of
3 chemicals and whatnot, but the implication is there that
4 there's an economic benefit to that activity even
5 happening.

6 And I don't -- I certainly agree with you
7 that it's not your mandate to protect jobs but there is an
8 implication of the economic activity associated with your
9 ruling.

10 **MR. LEVESQUE:** Stephane Levesque, for the
11 record.

12 I won't talk about the jobs because the
13 gentlemen just spoke about it. But what I will talk about
14 is the benefits of the product and the technology. I
15 think it's often forgotten that the alternative to this is
16 battery-powered product or electrical product.

17 Next time somebody including the gentleman
18 goes back to Toronto and takes a plane to Toronto and
19 there is an emergency exit latch on the plane that is not
20 powered by electricity or batteries, it's our product.

21 When there is a gentleman that gets dropped
22 in Afghanistan in a foxhole and has no batteries or no
23 power source because he can't have any and he has a light
24 to basically support him in his foxhole, it's our
25 products.

1 The products is really what's driving the
2 company as well as the 18 jobs. But there is a need for
3 this technology. There is no technology that replaces it
4 without power or without electricity, and I think that
5 should be noted.

6 **MR. ELDER:** I have to respond on part of
7 staff in terms of the perception on this.

8 One, this intervenor said he just stepped
9 into this. I would point out that staff did shut this
10 facility down by order in 2006. So to say that we're on
11 behalf of -- we went through and made sure this facility -
12 - I don't consider them -- that they brought themselves up
13 to current standards before we made the recommendation
14 that they could start -- restart operation in 2008.

15 There was lengthy discussion there. We're
16 coming here saying -- coming back in and saying, "They
17 have been able to live with the stricter standards that we
18 have imposed on them. And one of the things under the
19 CNSC approach, as the Commission is well aware, is we
20 present our point of view and we're quite happy to have
21 the Commission challenge it.

22 So we give you a comprehensive review of
23 this one from a safety perspective, not from an economic
24 perspective and maybe it comes out but how it comes out is
25 you, the Commission Members, quite rightly ask us

1 questions about our models, about how we do this. But all
2 our view is completely based on, is this facility safe,
3 within the Nuclear Safety and Control Act parameters which
4 is not zero risk.

5 **THE CHAIRMAN:** Okay, thank you.

6 Anybody else?

7 **MR. ALBRIGHT:** Could I just make one very
8 brief comment?

9 **THE CHAIRMAN:** Very brief.

10 **MR. ALBRIGHT:** Yes. We've been talking
11 about the risk of releasing this tritium but I think we
12 need to face the fact that when it only takes one atom of
13 tritium to cause fatal harm to a human being when it's
14 ingested and we are releasing here not just billions, not
15 just trillions, even quadrillions of these atoms into the
16 environment that fatal harm to some human beings is
17 inevitable, it's no longer a matter of risk. It's a
18 matter of certainty of harm. It's only a matter of how
19 much harm is going to be done. We can't unfortunately
20 specifically quantify that harm, but we can be absolutely
21 certain that it's going to be done.

22 **THE CHAIRMAN:** Thank you.

23 **MR. MacKENZIE:** Mr. Chair, sorry, may I ask
24 a question?

25 **THE CHAIRMAN:** A very quick question.

1 **MR. MacKENZIE:** Yes, I'll be very quick.
2 Just you mentioned cost recovery. Is it
3 100 percent cost recovery?

4 **THE CHAIRMAN:** Sorry, which cost recovery
5 are you talking about?

6 **MR. MacKENZIE:** Well, you mentioned that
7 the applicant has to pay a fee to have this hearing and to
8 have its application reviewed, and I'm just wondering if
9 all the travel costs of the Commissioners and the
10 webcasting and the time of the public ---

11 **THE CHAIRMAN:** It's a function of the
12 regulatory activity that we engage in.

13 **MR. MacKENZIE:** But it's 100 -- the SRB
14 Technologies is responsible for 100 percent of the costs
15 of regulating its business?

16 **THE CHAIRMAN:** Yes.

17 **MR. MacKENZIE:** Is it possible to get what
18 that number is, for maybe last year?

19 **THE CHAIRMAN:** It's tough. I don't know if
20 -- what is that number? We actually sent bills to the
21 various licensees and stakeholders. I just don't know if
22 it's in the public domain.

23 **MR. MacKENZIE:** I told you it would be a
24 quick question. Just looking for a quick answer.

25 **MR. JAMMAL:** Thank you, Mr. President.

1 Ramzi Jammal, Executive Vice-President, sir.

2 I've been sitting, listening. You can rule
3 me out of order, sir, but the attack on staff, the attack
4 on the Commission by individuals -- let me answer first
5 the cost recovery.

6 We have planned regular activity for all
7 licensees that are cost-recoverable to including the
8 exempt licensees and it is public information.

9 We issue the regulatory plan based on
10 regulated activity, the efforts we're going to be putting
11 and we do cost recover 100 percent.

12 However, this is --

13 **THE CHAIRMAN:** Sorry to interrupt. I
14 thought that those numbers were together with the
15 financial guarantees and the decommissioning ---

16 **MR. JAMMAL:** Sorry, sir ---

17 **THE CHAIRMAN:** --- but they were in one of
18 our CMDs, were they not?

19 **MR. JAMMAL:** Yes.

20 **THE CHAIRMAN:** Yes. So they're in the
21 public domain.

22 **MR. JAMMAL:** There's cost recovery and
23 there is the financial guarantee. The financial
24 guarantee, as mentioned by the Members of the Commission -
25 - it's not kept by the Commission. It's not for the use

1 of the Commission.

2 The Commission is not a profit organization
3 so we do not make money from any cost recovery.

4 But the attack on staff and the cost
5 recovery is the following. We just underwent an
6 international review by the IEEA.

7 The international review was based on
8 international standards; the application of the
9 international standard; the independence of the Commission
10 and the independence of staff.

11 As Mr. Elder mentioned, we make
12 recommendations to you, the Commission. You are free to
13 accept or refuse. You have refused quite often and even
14 the shutdown of any facility led by the designated
15 Canadian officer or order issued by the Commission is
16 reviewed in public.

17 So my point here is we went under review by
18 international committee. The report is out in the public
19 domain, clearly identifying the envy of the world with
20 respect to the CNSC structure, the independence of staff
21 from the Commission, the independence of the Commission as
22 separate, independent Members of the Commission being part
23 time, no connection to staff; and the cost recovery
24 capacity that provides full independence of this
25 Commission.

1 **THE CHAIRMAN:** Thank you.

2 Anything else on this?

3 Okay, thank you very much. We've got to
4 move on.

5 We are way behind time, and we got some --
6 a whole bunch of other submissions which are written
7 submissions.

8 This submission will be read into the
9 record of the hearing and we will proceed with groups --
10 actually, Marc, I'm doing your work here.

11 Go ahead.

12 **MR. LEBLANC:** You're doing well.

13 That's right. We will proceed with groups
14 of submissions based on the scope and nature of the
15 comments filed. And the Members will have an opportunity
16 to ask questions after each group, if any.

17 So the first group of submissions is from
18 representatives from government, municipal, or community
19 organizations. I'm going to list the number of the CMD
20 and who is the intervenor.

21 So H5.14, John Yakabuski, M.P.P. Renfrew-
22 Nipissing-Pembroke; H5.15, Mayor Ed Jacyno, City of
23 Pembroke; 5.19, Terry Lapierre, CAO, City of Pembroke;
24 5.22, Renfrew County United Way; 5.23, Colleen Souriol,
25 Manager, Planning and Building, City of Pembroke; 5.45,

1 Cheryl Gallant, MP, Renfrew-Nipissing-Pembroke; and 5.50,
2 Pembroke Fire Department.

3 Are there any questions from the Commission
4 Members with respect to these written submissions -- yes,
5 including 5.50, which is the Pembroke Fire Department.

6 **THE CHAIRMAN:** Anyone?

7 Mr. Tolgyesi?

8 **MEMBER TOLGYESI:** Yes, we were talking
9 about fire department here.

10 What's the fire training or fire drill --
11 what's the frequency? Do you do your fire drill with
12 Pembroke Fire Department?

13 **MR. LEVESQUE:** Stephane Levesque, for the
14 record.

15 Our fire drills are performed on a
16 quarterly basis.

17 **MEMBER TOLGYESI:** And what's the
18 information when you have new firefighters? What's the
19 information? How much technical information on products
20 and activities which you have and stock what you have?

21 You were saying that it's 6.6 kilograms of
22 uranium. How far you communicate this information and
23 educate or update firefighters?

24 **MR. LEVESQUE:** Stephane Levesque, for the
25 record.

1 In the first written submission on page 31,
2 I have a section on the fire responder training where I
3 state that on October 27th, just recently, we provided
4 training to all the firefighters that included a tour of
5 the facility and information with respect to various
6 hazards found at the facility including depleted uranium,
7 other chemicals that we have, and tritium and how to
8 respond to those.

9 Responders are also instructed on the
10 various properties and precautions with respect to
11 tritium.

12 **MEMBER TOLGYESI:** My last -- is Pembroke
13 firefighter crew -- it's a voluntary or it's a permanent?
14 They are employees of the city?

15 **MR. LEVESQUE:** Stephane Levesque, for the
16 record.

17 There's two components. It's a permanent
18 force but they also have a number of volunteers as well,
19 and at the training session we had both the permanent and
20 the volunteers took part.

21 **THE CHAIRMAN:** Dr. Barriault.

22 **MEMBER BARRIAULT:** Just one brief question
23 on 10-H5.19. It's the City of Pembroke and it's very
24 positive, but there's a question that comes to my mind
25 really on that one.

1 their continued operation." (As read)
2 Is there any numerical evidence polling to
3 support such a statement?

4 **MR. LEVESQUE:** Stephane Levesque, for the
5 record.

6 The only numerical polling that I can say
7 is -- and I talk about it on page 2 of my supplementary
8 submission on Submissions to the Public -- is that in 2008
9 there was a survey that was done by the local newspaper
10 where 2,300 respondents answered and over 90 percent of
11 the survey respondents were not concerned with the
12 presence of the facility in their community.

13 Another numerical thing that I can report
14 on is -- I think I stated earlier that prior to receiving
15 the 39 written submissions from the public in the 22
16 months or so of licence that we had received, only five
17 members of the public came to us with questions or
18 concerns.

19 In 2008 we also had mailed individual
20 pamphlets to over 8,000 residences in Pembroke and we've
21 only received comments or questions regarding those
22 pamphlets from Ms. O'Grady of "The First Six Years".

23 **THE CHAIRMAN:** That's it.

24 **MR. LEBLANC:** So the following 20
25 interventions which respect similar comments, concerns or

1 requests related to tritium contamination and third party
2 environmental monitoring have been submitted to the
3 Commission by the following members of the public: H5-12,
4 Marc Letellier; 27, Gary Amyotte ---

5 **THE CHAIRMAN:** Thank you and just keep ---

6 **MR. LEBLANC:** Did I miss one?

7 **THE CHAIRMAN:** Yes.

8 **MR. LEBLANC:** I did miss one. Sorry about
9 this.

10 **THE CHAIRMAN:** I'm doing your job again.

11 **MR. LEBLANC:** You're doing my job again.

12 So we'll move the next group over to
13 insertion which is a smaller group from businesses or
14 customers so 5.17, KoolTemp-Valley Refrigeration Ltd.;
15 5.21, Betalight B.V.; 5.25, Seiler Instrument &
16 Manufacturing Company Inc.; 5.26, Sigtex Lighting; 5.49,
17 898702 Ontario Inc.; 5.51, Steel Fire Equipment Ltd.;
18 5.52, Wild Sales Company, Inc.

19 And I'll do the present job. I will now
20 open the floor for questions from Commission members on
21 these submissions.

22 **THE CHAIRMAN:** Mr. Graham?

23 **MEMBER GRAHAM:** I have a couple of
24 questions. On 5.21 and 5.26 they're both European
25 companies. 5.21 is from the Netherlands, 5.26 has

1 connections with Europe. Are either one of those
2 companies related as sister companies or partners within
3 your organization?

4 **MR. LEVESQUE:** Stephane Levesque, for the
5 record.

6 No, the only sister company that we have is
7 located in United States and they are called also SRB
8 Technologies, so no, neither of those companies are
9 related to us.

10 **MEMBER GRAHAM:** Five twenty [5.20] -- thank
11 you -- 5.52 is Wild Sales Company and they're out of
12 California and they comment with regard to new rules that
13 have come into effect in California with regard to the
14 return of signs, new signs, company manufacturing the need
15 to return them. Are you under obligation to bring back
16 all signs sold in California after their life is -- after
17 they're no longer in use?

18 **MR. LEVESQUE:** Stephane Levesque, for the
19 record.

20 No, we're not.

21 **MEMBER GRAHAM:** How is that legislation
22 then -- I guess you don't know how legislation is policed
23 but I understand that there are new rules coming out.
24 Will that affect your sales in California?

25 **MR. LEVESQUE:** Stephane Levesque, for the

1 record.

2 To my knowledge, no. It hasn't been
3 reported yet by this company or any of our California
4 reps. It's important to note that the sales that are made
5 of exit signs notably within the U.S. are predominantly
6 made by our U.S. company and not by SRB in Canada. We
7 just sell to SRB in the U.S. and enter itself these
8 companies.

9 But from my understanding, I'm not aware
10 that these regulations would affect our sales here in
11 Canada.

12 **MEMBER GRAHAM:** The other -- the only other
13 one is on 5.49 which is your landlord Michael Harrington
14 and Ontario Company 898702. Is Mr. Harrington fully aware
15 that if anything happened to SRBT that he also could
16 happen to be liable for decommissioning costs if you
17 didn't have your fund fully paid up as your plans are
18 between now and 2014? Is he aware of that?

19 **MR. LEVESQUE:** Stephane Levesque, for the
20 record.

21 Good question. I think if I direct you to
22 -- we provided another letter from Mr. Harrington in
23 Appendix 3 of my submission to the public. If you'd like
24 to take it please -- which was not Appendix 3, I'm sorry,
25 for the first six years Appendix 8 in which Miss O'Grady

1 makes the same question.

2 There's a letter from Mr. Harrington in
3 Reference A. So it's in Appendix 8, Reference A where Mr.
4 Harrington discusses -- he says, "we have also discussed
5 how you're funding your decommissioning plan over time."
6 He knows that we have a plan that we'd be decommissioning
7 over time. He obviously knows that owning the facility
8 that if the company was to go out of business that
9 something would have to be done with the site somehow but
10 we haven't discussed who would be exactly liable for that
11 as we're not sure ourselves who would be -- whether that
12 would be done through a fund or any other sort. We don't
13 know we're hoping that we can fully meet our
14 decommissioning obligation, that doesn't become an issue.

15 **MEMBER GRAHAM:** First of all, perhaps he
16 should be made aware that there is liability there as he
17 pays it. He's the owner of the land but that question has
18 been asked before, I guess and if -- if, and there's a lot
19 of hypotheticals, if you did go broke and the financial
20 guarantees were not all in place, then there are -- and
21 this Commission has in the past gone after landlords --
22 and we in the present we are -- landlords are
23 decommissioning sites now and I'm not going to refer to
24 them so I'm just wondering if this landlord, a Mr.
25 Harrington, is aware that he has a legal liability as a

1 landowner?

2 **MR. LEVESQUE:** Stephane Levesque, for the
3 record.

4 Yeah, he's aware that there could be a
5 liability for the decommissioning, yes he is.

6 **MEMBER GRAHAM:** Very good. That's all I
7 have, Mr. Chair.

8 **THE CHAIRMAN:** Just to follow up on this --
9 let me see what number that is -- that 5.21. I'm trying
10 to understand your answer. I see this Betalight but I see
11 also SRBT on the letterhead. Big number, you know, big
12 letterhead saying SRBT. Are you telling me you guys are
13 not related?

14 **MR. LEVESQUE:** Stephane Levesque, for the
15 record.

16 No we're not at all related. It's an
17 independent rep who asked to use our logo on their
18 letterhead for promotional purposes. They're not at all
19 affiliated with our company. The ownership is entirely
20 separate.

21 **THE CHAIRMAN:** Okay. So those two
22 companies mentioned here, did they return this stuff to
23 you?

24 **MR. LEVESQUE:** Stephane Levesque, for the
25 record.

1 Yes.

2 **THE CHAIRMAN:** Both of them? The
3 Californian and this company?

4 **MR. LEVESQUE:** Stephane Levesque, for the
5 record.

6 Yes.

7 Stephane Levesque, for the record.

8 Any of the companies that would have
9 submission here, we would be open to having product return
10 from and we have received product from them, if that's the
11 question you're asking.

12 **THE CHAIRMAN:** Okay, thank you. Anybody
13 else has anything? Okay, next.

14 **MR. LEBLANC:** So I had started earlier the
15 group that had raised similar concerns with respect to
16 tritium contamination and third party environmental
17 monitoring. So they are 5.12, Marc Letellier; 5.27, Gary
18 Amyotte; 5.28, Bev Bergin; 5.29, Kris and Robin Bouchard;
19 5.30, Cusinda Bryden; 5.31, Tony Contant; 5.32, Robert and
20 Beth Cotnam; 5.33, Rachel Fleury; 5.34, Genny Gravelle;
21 5.35, Darlene Lafrance; 5.36, Justine Lafrance; 5.37, John
22 and Marcaill Macgillivray; 5.38, Kathleen and Lloyd Moss;
23 5.54, Rhonda Regimbal; 5.55, Stephanie Snook; 5.56, Tamara
24 White; 5.58, Dave Sloan; 5.59, Scott and Toby Waddell;
25 5.60, France and Claude Tessier; 5.61, Pia Schroeder-

1 Smith.

2 So before opening the floor for questions,
3 I will read another group of submissions raising similar
4 comments or concerns related to tritium emissions, third
5 party monitoring but also soil and water contamination,
6 the proximity of the facility with residences and the
7 reclamation work done at SRBT.

8 So we have 5.9, Venetia Crawford; 5.10,
9 Beatrice Biederman; 5.11, Linda Reiche; 5.13, Lynne Epps;
10 5.18, Kathrin Winkler; 5.46, Canadian Association of
11 Physicians for the Environment; 5.47, Larry TerMarsch;
12 5.48, Patricia Seawright; 5.53, Occupational and
13 Environmental Working Group, Toronto Cancer Prevention
14 Coalition; and 5.57, Wayne and Doreen Peever.

15 Any questions from the Commission members
16 with regards to these written submissions?

17 **THE CHAIRMAN:** Monsieur Harvey?

18 **MEMBER HARVEY:** Monsieur Président. Just
19 one question that would be H5.10, Ms. Biederman. There's
20 one -- concern number one, "if the CNSC Commission grants
21 a five-year licence to SRBT, my concern is that the
22 production will dramatically increase which again will
23 result in greater releases."

24 What is your -- is there any limit within
25 the licence on the production and what are your intentions

1 about the production in coming years? Will the production
2 could increase like the concern is ---

3 **MR. LEVESQUE:** Stephane Levesque, for the
4 record.

5 We expect our production to increase with a
6 five-year licence at a rate of approximately 10 percent a
7 year. That's the projections that we made. And despite
8 that increase I think we projected in the targets that we
9 submitted in our supplementary submission, we're
10 predicting reduction in the emissions every year despite
11 that.

12 But there are no limitations on the amount
13 of production that we can produce at SRB, other than the
14 time limitation that we've imposed on ourselves from seven
15 to seven, and other than the possession limit on how much
16 tritium we can possess on site.

17 **MEMBER HARVEY:** Mr. Elder?

18 **MR. ELDER:** There's another limit, which is
19 the amount they're allowed to release, and there's a
20 release limit on that from the stack, which would not let
21 them operate how they did in the past. And that limit is
22 considerably lower than their release limit used to be,
23 and would limit -- it's calculated to make sure that there
24 will not be a future problem in terms of contamination in
25 the groundwater.

1 **MEMBER HARVEY:** Thank you.

2 **THE CHAIRMAN:** Dr. McDill?

3 **MEMBER McDILL:** Two questions; one from
4 5.18 by Kathrin Winkler with respect to the revised
5 Radiation Safety Program, which makes reference to the
6 reclamation system, and I can see that that would be
7 confusing to the public who would read in your revised
8 safety program that there is still a reclamation portion
9 of the document.

10 So is there some way that that can be
11 addressed so that the public doesn't get the impression
12 that for the time being during this licensing period
13 you're doing -- if you've got it in your safety program it
14 must be an issue?

15 **MR. LEVESQUE:** SRB Technologies, for the
16 record.

17 I believe in our Radiation Safety Program
18 we stated that the unit was not in use and the reason for
19 that is because we wanted to revisit its possible
20 operation or modified operation in the future. We made a
21 commitment as part of the Radiation Safety Program that
22 we're updating right now, which should be ready over the
23 next few weeks, to basically remove entirely the
24 reclamation unit from the Radiation Safety Program to
25 eliminate any confusion.

1 **MEMBER McDILL:** Staff, you'll make sure
2 that that's addressed?

3 **MR. ELDER:** We will follow up on that, yes.

4 **MEMBER McDILL:** My next one was in -- as a
5 general comment for all the groups, beginning with 5.12
6 and then 5.27. All of these are making reference to the
7 qualified third party, so just -- I know it was said
8 earlier in the day but since we're now talking about these
9 intervenors, could I have staff's assurance that a third
10 party will be in place until such time as the proponent is
11 able to demonstrate qualified internal capability?

12 **MR. ELDER:** Yes, that is what we will be
13 measuring compliance against from this time onward.

14 **MEMBER McDILL:** Thank you, Mr. Chair.

15 **THE CHAIRMAN:** Thank you. Anybody else?

16 **MEMBER McDILL:** Mr. Levesque had a comment.

17 **MR. LEVESQUE:** Thank you. Stephane
18 Levesque, for the record. I just had a quick comment.

19 We recognized, when we met members of the
20 public in 2007, that that was the main concern of some of
21 the members of the public that we used a third party. So
22 we don't even seek, ourselves, to be able to perform that
23 ourselves. We see that as a good reassurance for the
24 public that the results are legitimate, so it's not
25 something that we seek, ourselves, to do over the next

1 five years.

2 **MEMBER McDILL:** Thank you.

3 **THE CHAIRMAN:** Monsieur Tolgyesi.

4 **MEMBER TOLGYESI:** Yes.

5 Regarding 5.58, there's a person who is
6 saying that having cancer now which is being related to
7 exposure to the produce made by this company in military.
8 Could you comment on that?

9 **MR. LEVESQUE:** Stephane Levesque, for the
10 record.

11 Myself or staff or both?

12 **MEMBER TOLGYESI:** Both.

13 **MR. LEVESQUE:** Okay.

14 We reported in a letter that we wrote to
15 Mr. Sloan, which is located in Appendix 38, that we would
16 appreciate more details on the exposure that he had
17 received to our products. Often our products can be
18 confused for products containing other radioactive
19 materials, so we want to make sure we're actually talking
20 about our products here and talking tritium.

21 We've had no reports of exposure that have
22 caused any health effects or any danger to health from any
23 of our customers anywhere in the world, and that comes
24 also from our affiliated companies.

25 So we have no information on that to

1 confirm that and we'd like to talk a little bit more to
2 Mr. Sloan to see if he'd be able to substantiate what he's
3 talking about here.

4 **MEMBER TOLGYESI:** You read also that he
5 doesn't wish to be contacted by you?

6 **MR. LEVESQUE:** Stephane Levesque, for the
7 record.

8 That makes that very difficult, yes, so we
9 discreetly sent him a letter and we won't contact him
10 directly other than sending him the information.

11 **MEMBER TOLGYESI:** Staff, do you have any
12 comments or knowledge of studies which say that cancer --
13 used in military, using tritium?

14 **MR. ELDER:** I'll ask Rachel Lane to comment
15 on the studies that have been done around tritium.

16 **MS. LANE:** Rachel Lane, for the record.

17 I think this is a very difficult situation
18 to assess, given that you have no information on exposure
19 to tritium for this gentleman, and no information on other
20 very important risk factors for cancer. It's just a
21 statement that his cancer has been caused by his military
22 use exposures, so one cannot draw any conclusions from a
23 statement like that.

24 However, there have been studies of nuclear
25 workers involved in weapons productions and so on, and

1 based on that epidemiological evidence, there's no
2 evidence that exposures to tritium have increased the risk
3 of cancer among occupational exposures from past or
4 present exposures.

5 That's all I can tell you. Thank you.

6 **THE CHAIRMAN:** On H5.9, a couple of times
7 we skated around the idea that there is a cancer rate in
8 the country, Pontiac County, and we've been told that we
9 have heard -- we have seen epidemiological studies that
10 don't indicate anything, increased cancer rate.

11 Does that include the Pembroke area? It
12 says here, "Are you aware that Pontiac County has one of
13 the highest cancer rates in the country?" Is that true?

14 **MR. ELDER:** I'll get Ms. Lane to answer
15 that one as well.

16 **MS. LANE:** The rates of cancer in Pontiac
17 County are actually lower than that in Gatineau, so it's
18 very difficult to draw anything from that.

19 The Renfrew County -- if you just give me a
20 second.

21 There was one intervention that was talking
22 about the high cancer rates, I believe, in the
23 neighbourhood of -- within Renfrew County, which is within
24 Pembroke, which is -- and I want to emphasize that all
25 studies that we have looked at that had looked at people

1 living in the vicinity of nuclear facilities
2 internationally provide no evidence that radiation
3 exposures have caused increase in rates of cancer or other
4 causes of illness in those communities.

5 **THE CHAIRMAN:** I got that. We got that.

6 The question is, is there anything specific
7 to that particular community? I mean I just want to know
8 the facts. Is there such a study has been conducted on
9 that community or in that area?

10 **MS. LANE:** Not that I'm aware of with
11 respect to tritium exposure.

12 **THE CHAIRMAN:** Okay.

13 On H5.47 it says -- this is on the second
14 paragraph in the middle.

15 "There is little data on the hazards
16 of tritium on the CNSC website."

17 Is that true? Answer. Somebody answer.

18 **MR. RINKER:** Mike Rinker, for the record.

19 We have a tritium research project that has
20 been going on for about three years. There's six or seven
21 major themes. The reports that are completed have all
22 been published on the website and there's been tritium
23 fact sheets, et cetera. So there's quite a bit of
24 information that would include tritium and it's fit in the
25 environment as well as the health implications.

1 **THE CHAIRMAN:** So did Mr. Larry TerMarsch
2 try to get hold of some of this data from you? Are you
3 aware?

4 Has anybody tried to get this data?

5 **MR. RINKER:** Not that I'm aware of.

6 **THE CHAIRMAN:** Okay. That's all for me.
7 Anything else?

8 **MR. LEBLANC:** Yeah, just another group. So
9 the last group of submissions are from members of public
10 expressing their support for the renewal of the licence.
11 These are 5.20, Lorraine Luckovitch; 5.24, Virginia
12 Monteleone; 5.39, Stephen Blok; 5.40, Kathleen Hoffman;
13 5.41, Josef Allen; 5.42, Anthony Corriveau; 5.43 André
14 Pellerin and family.

15 So are there any questions from the members
16 with regard to these written submissions?

17 **THE CHAIRMAN:** Dr. Barriault?

18 **MEMBER BARRIAULT:** This is more of a
19 comment than a question. If I look at H5.20, it's from
20 Lorraine Luckovitch who expresses concern because she's
21 been, I guess, scared into having problems with her well
22 water. And when she did get it tested, apparently, it was
23 okay.

24 But what I'm wondering is do we have the
25 levels for well water available?

1 **MR. LEVESQUE:** Stephane Levesque, for the
2 record.

3 We have levels for her well?

4 **MEMBER BARRIAULT:** Yes.

5 **MR. LEVESQUE:** Yes, we do. We reported
6 them to her in a letter and I believe it was -- one moment
7 --

8 **THE CHAIRMAN:** Well, just to save a little
9 time, we have this number. We'll point those numbers.

10 But I'd like to jump on the same letter and
11 there's another letter here where they express -- is that
12 -- Mr. Levesque, how did you find out that there was a
13 campaign going on, because some of the intervenors
14 complained about the fact that there was a campaign going
15 on against SRB. So I'm just curious to know how did you
16 find out about that?

17 **MR. LEVESQUE:** Stephane Levesque, for the
18 record.

19 Thank you for the question. I actually had
20 members of the public -- had some come in the facility and
21 ask me if what they were told were true. Some knew it
22 wasn't because they already had read information on our
23 website, did their own study.

24 And some contacted by phone so it was a
25 variation either by phone or people that came to our

1 facility and asked questions. And that's why I decided
2 with Ross, the general manager, to do my own door-to-door.
3 The people that have done the written submissions first,
4 and we'll be doing a mass mailing to people around that
5 area, to hopefully be able to cash in. In fact, that's
6 how we found out was by those people contacting us.

7 **THE CHAIRMAN:** Yeah, I'm just reading
8 Kathleen Hoffman and Lorraine Luckovitch ---

9 **MR. LEVESQUE:** Yeah.

10 **THE CHAIRMAN:** --- concern.

11 Okay.

12 **MS. O'GRADY:** Dr. Binder, if I could
13 respond to that because that again implies something
14 against something I was doing in the community.

15 Kelly O'Grady, for the record.

16 I'd like to say that one of the people
17 probably that responded to Mr. Levesque is Mr. Corriveau,
18 Anthony Corriveau, who lives in that neighbourhood who
19 they have a godparent relationship and he also has an
20 apple tree with some of the highest contaminant levels in
21 that apple as well.

22 And the other one would be Lorraine
23 Luckovitch and we at no time described Mr. Levesque as a
24 monster but in fact her daughter used to work at SRB and
25 it was probably her daughter that used that term.

1 Thank you.

2 **MEMBER GRAHAM:** MR. Chair, just one
3 question I had.

4 I noticed some of those are either
5 employees or relatives of employees and so on. Are any of
6 those seven -- did Mr. Levesque solicit their -- to write
7 letters of support?

8 **MR. LEVESQUE:** I'm sorry, to be honest, I
9 was looking for some information. Could you repeat the
10 question, please? I'm sorry.

11 **MEMBER GRAHAM:** Okay. The last seven
12 intervenors -- Luckovitch, Monteleone, Blok, Hoffman,
13 Allen, Corriveau, and the Pellerin family -- are any of
14 those -- did you solicit those people to write letters of
15 support?

16 **MR. LEVESQUE:** Stephane Levesque, for the
17 record.

18 Some solicited themselves including the
19 H.20 which is Ms. Lorraine Luckovitch. She did a letter
20 on her own.

21 **MEMBER GRAHAM:** Thank you.

22 **THE CHAIRMAN:** Any other? Anything else?
23 Okay, thank you.

24 I think we are now at the final round of
25 questioning. And let me start -- Dr. Barnes.

1 **MEMBER BARNES:** No, I have no more
2 questions.

3 **THE CHAIRMAN:** Dr. McDill?
4 Dr. Barriault?

5 **MEMBER BARRIAULT:** No thank you, Mr.
6 Chairman.

7 **THE CHAIRMAN:** Mr. Tolgyesi?
8 I think we are competing here with dinner
9 or something like that.

10 Monsieur Harvey?

11 **MEMBER HARVEY:** No thank you.

12 **THE CHAIRMAN:** Pas de questions.
13 Mr. Graham?

14 **MEMBER GRAHAM:** The only comment I got to
15 make is that the people that may have intervened today
16 believe they've looked at the whole history of SRBT and
17 us, this Commission, revoking their licence and all the
18 other things that have gone on. Some of this -- some of
19 the criticism I believe to Mr. Levesque was self-inflicted
20 because of the poor performance you had in the past and
21 there is a real trend of improvement. But you can't let
22 your guard down. It's got to continue to improve.

23 **THE CHAIRMAN:** The only comment I would
24 make is that it reminds me of the big study that was
25 released, I think yesterday, about cell phones where it

1 took 10 years in 13 countries -- I think if the number's
2 correct -- millions of subscribers. And the scientists
3 could not reach a conclusion which indicates that science
4 is tough and what I hear here is debate among scientists
5 about what is safe and what is not safe. And
6 unfortunately we, as Commission, have to make a decision
7 and determination on our own.

8 So thank you all for your patience. And
9 you probably will read our decision in the future some
10 time.

11 What do we do now, Marc?

12 **MR. LEBLANC:** This will bring a close to
13 the public portion of the hearing. So with respect to
14 this matter, the Commission will confer with regards to
15 information that they have considered today. And then
16 determine if further information is needed or if the
17 Commission is ready to proceed with a decision.

18 We will advise accordingly including on
19 some requests that were made today.

20 So in that context, Mr. President, that
21 would conclude the hearing of the Commission. And you may
22 want to ---

23 **MS. TILLMAN:** Sorry to interrupt, but in
24 terms of the conclusion, the requests -- he said,
25 "including the requests made". A number of us have

1 requested time to respond to the letter and I think that -
2 --

3 **MR. LEBLANC:** That's why I referred to it.
4 That will be part of our deliberation.

5 **MS. TILLMAN:** And we would know that by
6 what mechanism?

7 **MR. LEBLANC:** As soon as a determination
8 has been made by the Commission in its deliberation and I
9 will ---

10 **MS. TILLMAN:** Thank you very much.

11 **MR. LEBLANC:** --- be communicating with the
12 participants.

13 **MR. LEVESQUE:** Just a piece of information.
14 Stephane Levesque for the record.

15 You asked before while the individual was
16 just under 52 becquerels per litre that you were asking
17 about that I didn't have at that time.

18 And to comment on Mr. Graham -- yes, some
19 of the comments were self-inflicted, but I think the
20 company that you see today is nowhere near the company
21 that it was in 2005 and '6.

22 So I hope you see it to hopefully issue us
23 a five-year licence. Thank you.

24 **MEMBER GRAHAM:** Thank you for the
25 information on 52.

1 **THE CHAIRMAN:** Okay, thank you. We will --
2 okay, so we will reconvene here in meeting in 15 minutes.
3 --- Upon adjourning at 5:09 p.m.

4

5

6