

**Canadian Nuclear  
Safety Commission**

**Commission canadienne de  
sûreté nucléaire**

**Public Hearings**

**Audiences publiques**

**October 25, 2006**

**Le 25 octobre 2006**

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

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

**Commission Members present**

**Commissaires présents**

Ms. Linda J. Keen  
Dr. Moyra McDill  
Mr. Alan Graham  
Dr. Christopher Barnes  
Mr. James Dosman

Mme Linda J. Keen  
Dr. Moyra McDill  
M. Alan Graham  
Dr. Christopher Barnes  
M. James Dosman

**Secretary:** Mr. Marc A. Leblanc

**Secrétaire:** M. Marc A. Leblanc

**General Counsel :** Ms. Maislin-Dickson

**Conseiller général :** Mme Maislin-Dickson

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Ottawa, Ontario

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2  
3 --- Upon commencing on Wednesday, October 25, 2006  
4 at 8:35 a.m.

5  
6 **Opening Remarks**

7 **M. LEBLANC:** Bonjour, mesdames et  
8 messieurs. Bienvenu à cette audience publique de la  
9 Commission canadienne de sûreté nucléaire. The Canadian  
10 Nuclear Safety Commission is about to start one public  
11 hearing this morning and two panel hearings this  
12 afternoon.

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

16 During today's business we have  
17 simultaneous translation. Des appareils de traduction  
18 sont disponibles à la réception. La version française est  
19 au poste 8 and the English version is on channel 7. If  
20 you would, please keep the pace of speech relatively slow  
21 so that translators have a chance of keeping up.

22 L'audience est enregistrée et transcrite  
23 textuellement. La transcription sera disponible sur le  
24 site web de la Commission dès la semaine prochaine. To

1 make the transcript as meaningful as possible, we would  
2 ask everyone to identify themselves clearly before  
3 speaking.

4 As a courtesy to others in the room, please  
5 silence your cell phones.

6 Madame Keen, présidente et première  
7 dirigeante de la CCSN présidera l'audience publique  
8 d'aujourd'hui.

9 Madame Keen.

10 **THE CHAIRPERSON:** Good morning and welcome  
11 to a hearing today of the Canadian Nuclear Safety  
12 Commission.

13 I would like to begin by introducing the  
14 members of the Commission that are with us today. On my  
15 left is Mr. Alan Graham and Dr. James Dosman; on my right,  
16 Dr. Moyra McDill and Dr. Christopher Barnes.

17 As well as the Secretary of the Commission,  
18 Marc Leblanc, we are joined on the podium today by Ms.  
19 Samantha Maislin-Dickson who is our General Counsel for  
20 this matter.

21 I would like to note that the Commission is  
22 still on enhanced security status, as are many of the  
23 facilities that we regulate and, as such, I will take the  
24 necessary action to ensure that security matters of a  
25 sensitive nature are not discussed in public and I will,

1 at any time, take the move to pull us into closed session,  
2 in camera, to discuss those types of matters.

3 Before adopting the agenda, please note  
4 that two supplementary Commission Member Documents or, as  
5 I will be referring to them today, CMDs, were added to the  
6 agenda after publication on September 26, 2006 and these  
7 matters are listed on the updated agenda.

8 With this information, I would like to now  
9 call for the adoption of the agenda by Commission Members  
10 as noted in CMD 06-H23.B.

11  
12 **06-H23 / 06-H23.A / 06-H23.B**

13 **Adoption of Agenda**

14 **THE CHAIRPERSON:** Do I have the concurrence  
15 of the members?

16 For the record, the agenda is adopted.

17 On today's agenda is Hearing Day One on the  
18 matter of the Application by SRB Technologies Canada Inc.  
19 for the Renewal of a Class 1B Nuclear Substance Processing  
20 Facility Operating Licence in Pembroke, Ontario.

21 **MR. LEBLANC:** This is Day One of the public  
22 hearing. The Notice of Public Hearing 2006-H07, Revision  
23 2, was published on September 12, 2006. This matter was  
24 originally scheduled to be heard on August 17<sup>th</sup> and  
25 October 25<sup>th</sup>, 2006. It was adjourned to today and Day Two

1 will be held on November 27<sup>th</sup>, 2006. Submissions from  
2 SRBT and CNSC staff were due on September 25<sup>th</sup>, 2006.  
3 CNSC staff requested an extension to file their  
4 supplementary submission. A panel of the Commission  
5 varied the rules to allow CNSC staff to file their  
6 submission on October 19<sup>th</sup>.

7 October 18<sup>th</sup> was the deadline for filing of  
8 supplementary information. I note that supplementary  
9 information has been filed by SRBT and CNSC staff.

10 Commission Member Document 06-H16.A and  
11 H16.1C are confidential and will be discussed in closed  
12 session, if necessary, after the public portion of the  
13 hearing.

14 Exceptionally, the Commission has received  
15 and accepted a submission from the Concerned Citizens of  
16 Renfrew County to be presented at Day One of this hearing.  
17 This submission is referred to as CMD 06-H16.2 and 06-  
18 H16.2A.

19 The Commission also notes that the licensee  
20 has submitted as Appendix "A" to CMD 06-H16.1B the  
21 information that was submitted respecting the designated  
22 order issued on August 15, 2006 and that led to it being  
23 reviewed by the Commission further to an opportunity to be  
24 heard on August 17, 2006.

25 The Commission notes that this information

1 as well as all previous CMDs pertaining to this licence  
2 application and the Order form part of the public record  
3 and the Commission has taken notice of this information.

4 **THE CHAIRPERSON:** Therefore, I would like  
5 to start the hearing today by calling on the presentation  
6 from SRBT, as outlined in Commission Member Documents 06-  
7 H16.1, 06-H16.1A, 06-H16.1B.

8 I will turn it over to Mr. Stéphane  
9 Levesque, President, for your remarks. Mr. Levesque, you  
10 have the floor, sir.

11  
12 **Hearing Day One**

13  
14 **SRB Technologies (Canada) Inc.:**  
15 **Application for Renewal of Class**  
16 **IB Nuclear Substance Processing**  
17 **Facility Operating Licence in**  
18 **Pembroke, Ontario**

19  
20 **MR. BENEVIDES:** Madam President, a couple  
21 of questions of order. Thank you. Good morning. My name  
22 is Hugh Benevides. I'm with the Canadian Environmental  
23 Law Association representing the Concerned Citizens of  
24 Renfrew County and I just had a couple of very quick  
25 questions about the procedure.

1                   First was just to ensure that we have the  
2 correct agenda. The one that we have for today is dated  
3 the 26<sup>th</sup> of September. That's the best way I can think of  
4 to identify it or distinguish it from any other version.

5                   **MR. LEBLANC:** Mr. Benevides, there is an  
6 updated agenda dated October 20<sup>th</sup> that was available at  
7 reception. Louise Levert is bringing you a copy as I  
8 speak.

9                   **MR. BENEVIDES:** Merci beaucoup.

10                   And the other question, Madam President, is  
11 the procedure for the questioning at the conclusion of the  
12 presentations. I understand there's a question period and  
13 I'm wondering whether the Concerned Citizens will be  
14 allowed an opportunity to ask questions in addition to the  
15 other questions that are posed, and the reason I ask is  
16 that CCRC believes that there are certain questions that  
17 are so fundamental to the determination whether SRB has or  
18 can in the future make adequate provision for the  
19 protection of the environment. So these are questions  
20 that we actually had considered asking to pose at the  
21 outset, not have them answered then but put them on the  
22 agenda, but if there's an opportunity to ask questions  
23 towards the conclusion of the day, then we would ask that  
24 we would be able to do so then.

25                   Thank you.



1                   **THE CHAIRPERSON:** First of all, thank you  
2 very much.

3                   It should be noted that the Commission's  
4 decision to put the CMDs on from the Concerned Citizens of  
5 Renfrew County is an exceptional case. It should be noted  
6 that this is an exceptional case, that this is for Day One  
7 and this was decided quite some time ago when this matter  
8 was to be heard initially.

9                   So, first, we should understand that having  
10 intervenors on Day One is not the usual practice of the  
11 Commission because there is ample opportunity before Day  
12 Two to do this. So we should understand the privilege  
13 that has been allowed for the Concerned Citizens of  
14 Renfrew County and this should be appreciated.

15                  Number two is that on your request, we will  
16 turn to the Concerned Citizens of Renfrew County, who is  
17 the intervenor today. Whether you represent them or are  
18 with them, it still will be that the intervenor before us  
19 today that has been allowed this privilege is the  
20 Concerned Citizens of Renfrew County and, as such, we will  
21 turn for questions to be directed through the Chair and as  
22 long as those questions are reasonable and hit the  
23 subject, you can be assured that this administrative  
24 tribunal appreciates bringing knowledge to the table. So  
25 we will be doing that.

1                   However, we do expect that CMDs are as  
2                   fulsome as possible and do give the Commission Members,  
3                   who are the body responsible for the questioning of the  
4                   licensee and the staff today, that as much possible the  
5                   information is contained in CMDs, which is in line with  
6                   our views as to transparency and openness of processes  
7                   because it gives everyone then an opportunity to prepare  
8                   adequately, and that's what we try to do here.

9                   Dr. Barnes.

10                   **MEMBER BARNES:** It might be helpful  
11                   obviously that any further questions could be posed and  
12                   any submission for Day Two which, again, could be then  
13                   considered by the Commission Members before that meeting,  
14                   all right?

15                   **MR. BENEVIDES:** Madam President, Hugh  
16                   Benevides.

17                   Just for clarification, I believe all but  
18                   perhaps one of the questions that we had identified --  
19                   well, these initial questions were a short list. I  
20                   believe all but perhaps one are indeed contained in our  
21                   submission and/or supplementary.

22                   Also, the Concerned Citizens do indeed  
23                   appreciate that this is an exception that's been made and  
24                   we do indeed appreciate it, and we appreciate that it was  
25                   a decision made to allow the most fair, informal and

1 expeditious carrying-out of the process, and we believe it  
2 was a correct decision. So while we appreciate it, we  
3 think it was justified given the Concerned Citizens'  
4 continued involvement in the matter of SRB's licensing.

5 So thank you again.

6 **THE CHAIRPERSON:** Yes, and I must say that  
7 the Commission does understand the continuing involvement  
8 of the Concerned Citizens of Renfrew County and this  
9 exception was made based on due consideration of the  
10 quality of the submission and the issues raised.

11 So on that basis, we will now turn to Mr.  
12 Levesque, and you have the floor, sir.

13  
14 **06-H16.1 / 06-H16.1A / 06-H16.1B**

15 **Oral presentation by**

16 **SRB Technologies (Canada) Inc.**

17 **MR. LEVESQUE:** Thank you.

18 My name is Stéphane Levesque, for the  
19 record. I'm the President of SRB Technologies and I'll  
20 make the presentation today, and to help me answer  
21 questions I have my Radiation Safety Officer, Shane  
22 MacDougall; our General Manager, Ross Fitzpatrick, and  
23 some of our independent consultants, Neil Morris and Ron  
24 Nicholson from EcoMetrix; and Dr. Richard Osborne from  
25 Ranasara Consultants.

1 Over the past year, our staff supported  
2 with the help of third parties have worked extremely hard  
3 to resolve outstanding issues. We would like to take this  
4 opportunity to thank CNSC staff for providing the detailed  
5 reviews of our programs and documents, which have helped  
6 provide better convergence and communications between SRB  
7 and CNSC staff.

8 We understand that the onus is on our  
9 company to be responsive, to correct problems and not to  
10 wait for CNSC staff to do compliance.

11 We have met every commitment on the Action  
12 Plan on our licence issued last November and have been  
13 subjected to increased frequency of inspections, which we  
14 hope have helped CNSC staff instill their confidence in  
15 SRB.

16 We are committed to continuing our hard  
17 work in the future in order to have all our programs and  
18 documentation exceed regulatory requirements and CNSC  
19 expectations while focusing on addressing the requirements  
20 of the Order.

21 SRB would like to respectfully request that  
22 the Commission consider the issuance of a licence for a  
23 three-year term, which will allow us to allocate the time  
24 and resources to address issues such as those relating to  
25 the groundwater study rather than the re-licensing. SRB

1 believes that a licence for a three-year term would be  
2 warranted and beneficial. As discussed in CMD-02-M12 on  
3 staff approach or recommending a licence period, a shorter  
4 licensing period is a significant regulatory burden. We  
5 will take the necessary precautions to ensure that the  
6 health of the public and the environment are not at risk  
7 and that regular public input is facilitated and  
8 considered.

9 In addition, a three-year licence term will  
10 allow us to be more proactive and would also provide us  
11 the necessary time and resources to focus on addressing  
12 actions required to address the designated Order; ensure  
13 that all programs remain current to the latest safety  
14 standards and requirements; ensure the financial ability  
15 to make further improvements above and beyond regulatory  
16 requirements; and ensure our financial ability to fund a  
17 financial guarantee for decommissioning.

18 To further ensure that the health of the  
19 public and the environment are not at risk, SRB would  
20 maintain as part of its operating licence the restriction  
21 in the existing operating licence.

22 Some months ago, staff requested that we  
23 ensure that the DRL, derived release limits, calculation  
24 for the facility be revised with an objective of not just  
25 the DRL but a greater objective of protecting the

1 environment and the public for possible conditions at  
2 present and into the future and provide more transparency  
3 to allay any public concerns.

4 As promised in our Action Plan, the revised  
5 DRL was finalized and submitted on January 31<sup>st</sup>, 2006 and  
6 supplied to CNSC staff for review. This review also  
7 included an analysis of emission data, EMP data and  
8 reassessment of those to members of the public.

9 On June 15, 2006, CNSC staff provided their  
10 review of the DRL. In their review, staff stated the SRB  
11 submission had addressed the major point raised by the  
12 staff and at an appropriate level of detail. CNSC staff  
13 also concluded that the historical review and the revision  
14 of the DRL had met overall staff expectations and that  
15 only minor technical issues and points of clarification  
16 and/or corrections remain.

17 One of our third parties, EcoMetrix, has  
18 reviewed the comments of the CNSC, and the final revision  
19 of the DRL incorporating CNSC staff comments was submitted  
20 to CNSC staff on September 29, 2006.

21 Environmental Monitoring Program: On our  
22 own initiative, SRB decided to incorporate sampling of  
23 local wells, pools and urine supplied by members of the  
24 public into the EMP. SRB also explained -- expanded its  
25 air monitoring array from 14 to 41 locations. A very

1 preliminary review of the EMP by CNSC staff in November  
2 identified that SRB had made improvements to their  
3 program. As a further improvement to the EMP, because  
4 some of the results are of a low level, and to ensure the  
5 accuracy of these results, in November 2005, SRB  
6 contracted AECL who have a low level measurement  
7 capability to perform all sampling and analysis of  
8 environmental results, which will continue in the future.

9 As promised in our Action Plan, based on  
10 the revised DRL submitted in January, another revision of  
11 the EMP was compiled by SRB in conjunction with our third  
12 party and submitted to staff for review on February 28,  
13 2006.

14 On June 23<sup>rd</sup>, CNSC staff provided their  
15 comments on EMP. In their review, staff provided a number  
16 of specific comments, which should be addressed in the  
17 next revision once the DRL document is revised and  
18 accepted.

19 Following the submission of the final DRL  
20 and approval by the CNSC, SRB will then develop a final  
21 revision of the EMP incorporating CNSC staff comments.  
22 It's important to note that -- although it's not listed in  
23 our CMD -- that we have recently received produce sampling  
24 performed that showed tritium levels around the Pembroke  
25 area were 10 to 30 per cent of what they were a year ago

1 in produce that were sampled.

2 In addition, passive air sampler results to  
3 date are approximately 30 per cent of what they were a  
4 year ago. With our decreasing emissions, these numbers  
5 are expected to continue to decrease in the future.

6 The majority of the equipment used in our  
7 emissions monitoring has been upgraded to more modern  
8 standards in order to provide better accuracy of results.  
9 Pitot tubes have permanently been installed on the stacks  
10 and are monitored and maintained by a third party on a  
11 monthly basis to ensure stack airflow nears design  
12 requirements. Also, calibrated digital flow metres have  
13 been installed on the bubbler system with volume totalizer  
14 functions. These units monitor the amount of stack  
15 emission gas being pulled through the measurement system.

16 SRB has also increased the rate of stack  
17 maintenance by an independent third party from quarterly  
18 to monthly. We have also purchased a new bubbler system,  
19 which we found at over 10 sampling periods was reporting  
20 results more conservatively than our old bubbler. We then  
21 requested CNSC staff that we change the bubbler to this  
22 new one in order to monitor emissions more conservatively.  
23 We then contracted AECL to install an independent bubbler  
24 to allow the validation of this new bubbler. The  
25 comparison determined that the average SRB measurement of



1 exhaust emission was found to be 113.3 per cent of what  
2 was measured by AECL to the parallel system. Based on  
3 these results, SRB feels that the new bubbler provides an  
4 accurate and conservative method of measuring emissions  
5 which will further protect the environment.

6 In addition, at least every two years, SRB  
7 will contract an outside party to install an independent  
8 bubbler monitoring system to allow repeated validation of  
9 the new system. The next validation is scheduled to take  
10 place in December 2007.

11 Tritium mitigation technology: As promised  
12 in our Action Plan on May 30<sup>th</sup>, we provided a report to  
13 CNSC staff with further mitigation commitments, which have  
14 already or will be taken by SRB. The report also provided  
15 an overview of the results and observations resulting from  
16 the introduction of various mitigation measures introduced  
17 to date. We provided CNSC staff other updates of our  
18 mitigation initiatives on July 18th and September 15th. A  
19 number of these initiatives have been introduced to reduce  
20 emissions from the facility and have resulted to, at the  
21 time I wrote the report of 43 per cent reduction which is  
22 now down to 62 per cent in emission, so we've reduced the  
23 emissions by 62 per cent and a 25 per cent reduction in  
24 stack dose, compared to the year before.

25 The information was used to draw

1 conclusions where possible to help define further  
2 mitigation commitments, which will be taken by SRB. One  
3 of the first things we did is our operational procedures  
4 were improved over the years to reduce the releases of  
5 tritium in air. All oil pumps were removed from service  
6 gradually until completion in November 2005. Under advice  
7 from a third party with experience in tritium mitigation  
8 technology, we installed a tritium oxide trap for a period  
9 of eight weeks. During the eight weeks of operation, a  
10 total of 9.7 curries of HTO tritium oxide was collected by  
11 the trap capturing only .18 per cent of the tritium  
12 process through the filling rate. The trap did not  
13 collect an appreciable amount of tritium compared to other  
14 methods used to reduce emissions.

15 In order to prevent the generation of  
16 tritium oxide from the oxidation of stagnate tritium gas,  
17 SRB retrofitted filling rigs with a system that allows  
18 inner gas to purge the exhaust system of the equipment on  
19 July 10th. We later revised that system to be able to  
20 purge the entire system right at the source on August 3rd.  
21 Based on our operational experience and our observation,  
22 we've also concluded that by further reducing the number  
23 of filling cycles on our PU would lead to a reduction in  
24 quantity of tritium gas being released via the stacks. We  
25 reduced it from 20 to 18 to 15 filling cycles.

1                   We also determined that when a run on a  
2                   filling rig is performed, as many as 100 lights are loaded  
3                   per run. The system, including the lights, is then  
4                   evacuated to atmosphere using a high vacuum pump to  
5                   atmosphere. The system is then closed to the atmosphere  
6                   by use of a series of valves. The PU is then heated to  
7                   release tritium to fill the lights. The lights are then  
8                   sealed and removed. The system remains closed to  
9                   atmosphere during this process. The tritium and the  
10                  closed system is then reabsorbed onto the PU as its  
11                  temperature drops. However, a small amount of tritium gas  
12                  remains in the system incapable of being reabsorbed by the  
13                  PU and subsequently released when the system is eventually  
14                  exposed to atmosphere. The amount of residual tritium gas  
15                  in the system is proportional to the volume in the system  
16                  thereby reducing the volume would reduce the amount of  
17                  residual tritium being released. A large part of this  
18                  volume is in a glass stub, which is part of the light,  
19                  which remains in the system after the light is sealed and  
20                  removed. The smaller the stub the smaller the volume  
21                  which contains the residual tritium. Based on the type of  
22                  lights that we make, we reduced the tritium, which has  
23                  resulted in a volume, or release reduction of 13.4 per  
24                  cent for the majority of our lights and 6.2 per cent for  
25                  other lights, which will be directly proportional to

1 release drops.

2 We are also investigating putting  
3 additional pyrophoric units on our system and we will  
4 continue to perform research and development and assess  
5 the numbers and we've initiated a program to identify  
6 possible mitigation measures to further reduce emissions  
7 as part of the annual compliance report. SRB will report  
8 on this research and the feasibility limitations and  
9 benefits of introducing new measures in the future.

10 The result of the mitigation measures taken  
11 over the years has been lowering of our average weekly  
12 emissions as low reasonably achievable to less than 3 per  
13 cent of what they were in 2000.

14 The monitoring of our emissions is used as  
15 our performance assessment to ensure that provisions to  
16 protect the public and the environment are adequate.

17 Figure 1 shows that the trend in weekly  
18 total activity release in 2006 has decreased gradually  
19 from the start of the year to our last full week of  
20 operation, with both HT and HTO decreasing. That's our  
21 last full week of operation before the designated order  
22 was issued.

23 After resuming production on September 7th,  
24 emissions have continued to decrease past this date.

25 Figure 2 demonstrates the decrease in total

1 tritium release indicating a 97 per cent reduction since  
2 2000 with drastic decreases in both HT and HTO year after  
3 year.

4           Until the DRLs were revised, staff  
5 recommended that the release of tritium from the facility  
6 be managed under stricter controls in order to ensure  
7 protection of the environment and the public. For our  
8 existing licence, CNSC staff proposed a reduced weekly  
9 limit in the current licence, which constituted 6.66 per  
10 cent of the old limit, which we worked within.

11           Now, CNSC staff in CMD 06-H16 proposed an  
12 emission limit that will allow for an acceptable level  
13 environmental protection as they would allow for  
14 sustainable use of groundwater resources, although the  
15 groundwater on site is non-potable and that municipal  
16 restrictions and zoning would not allow it to be used as  
17 drinking water. The proposed emission limit was derived  
18 as a fraction of the Canadian Drinking Water Guideline.  
19 The proposed total tritium limit is approximately 0.45 per  
20 cent of the existing limit and the proposed tritium oxide  
21 limit is approximately 5.63 per cent of the existing  
22 limit.

23           Our consultants have tried to calculate a  
24 limit that would ensure further protection of the  
25 environment at the same level, but I've calculated a

1 higher limit. So what we are proposing is to use the  
2 limit that is proposed by CNSC staff and to use it as an  
3 action level. We are confident that we can work within  
4 this action level.

5 Figures 3 and 4 briefly show you what the  
6 various limits over the years have been.

7 Figures 5 and 6 show you the limit that we  
8 are currently working under right now against what our  
9 releases have been since 2000.

10 Fire Protection: As a result of the CNSC  
11 staff inspections last year, SRB decided that all future  
12 fire protection issues will be reviewed by both the  
13 Pembroke Fire Department and Nadine International, an  
14 independent third party with experience in dealing with  
15 fire protection issues with other CNSC licensees. Annual  
16 fire protection inspections performed by both the Pembroke  
17 Fire Department and Nadine International have also been  
18 instituted. Nadine performed the first of these annual  
19 inspections on November 27th and the Pembroke Fire  
20 Department performed the first annual inspection on May  
21 15th. All findings of these inspections have been  
22 satisfactorily addressed and closed.

23 Nadine performed an additional site visit  
24 in January to verify the modifications completed, to  
25 address all outstanding CNSC directives. In February,

1 this third party verification was supplied to CNSC staff.  
2 Nadine also prepared with SRB, a new fire protection  
3 program addressing all comments made by staff in their  
4 February 7th letter. This new fire protection program was  
5 submitted to CNSC staff in April 2006 after being reviewed  
6 and approved by the Pembroke Fire Department.

7 On April 10th, on the recommendation of the  
8 Pembroke Fire Department, SRB funded the majority of a  
9 training program for NFPA and EMS courses for the offices  
10 of the Pembroke Fire Department. Course titles include  
11 respiratory protection, personal protection equipment,  
12 advanced hazardous waste operations, emergency response  
13 awareness, spill prevention and control, combustible and  
14 flammable liquids, compressed gas safety and radiation  
15 safety.

16 In order to improve life safety conditions  
17 at our facility, an automatic sprinkler system has been  
18 installed in the facility. The design of the system has  
19 been reviewed and approved by both Nadine and the Pembroke  
20 Fire Department. A fire alarm panel was also installed to  
21 monitor the sprinkler fire alarms.

22 Although the facility does not have floor  
23 drains, there is a small possibility that liquids spilled  
24 in the active area could be released to other areas of the  
25 facility through imperfect seals around door openings,

1       which is an issue for the groundwater study as well.  
2       Spilled liquids or water could also result in the  
3       activation of our newly installed sprinkler system.  
4       Therefore, SRB has undertaken to have a physical barrier  
5       sealing the active area from other areas by November 30th.  
6       We have also identified testing requirements and placard  
7       requirements for the sprinkler system, which will also be  
8       instituted by November 30th.

9                   Preliminary Decommissioning Plan (PDP): In  
10       order to expedite the completion of PDP, SRB hired  
11       Candesco Research Corporation, an independent third party  
12       with experience of providing advice in this field to other  
13       CNSC licensees. In accordance with the action plan,  
14       another revision of the document was submitted to CNSC  
15       staff by Candesco on March 14th.

16                   Approximately three months later, in July,  
17       staff provided their review of the PDP and the associated  
18       cost estimate and financial guarantee. In their review,  
19       staff concluded that the PDP was found to be acceptable.  
20       In their review, staff also requested that a revised PDP  
21       cost estimate be provided based on the review comments.  
22       SRB was also requested to provide a proposal -- proposed  
23       plan for funding the PDP activities and for financial  
24       guarantee instruments. SRB has investigated a number of  
25       methods, including all methods of establishing a financial



1       guarantee, as outlined in the Regulatory Guide G206. SRB  
2       attempted for over a year to its insurance broker to find  
3       a product in the insurance industry to establish an  
4       insurance policy that would pay for all or a part of the  
5       financial guarantee, to no avail. Such a product  
6       currently does not exist.

7               Over several months, SRB attempted to  
8       establish, at various financial institutions and banks, a  
9       letter of credit that would pay for all or part of the  
10      financial guarantee, to no avail. SRB offered various  
11      forms of collateral from receivables of equipment or any  
12      other assets but none proved to be acceptable.

13             In March 2006, SRB created a  
14      decommissioning fund to which it has been making monthly  
15      contributions. SRB is prepared to have this fund in a  
16      form that can be secured by the CNSC.

17             On August 7<sup>th</sup>, SRB provided CNSC staff a  
18      plan for funding the decommissioning activities and a  
19      proposed agreement to formalize the financial guarantee,  
20      based on the requirements of Regulatory Guide G206.

21             SRB has started to review the comments in  
22      the letter dated July 5<sup>th</sup>, from CNSC staff requesting that  
23      a revised PDP cost estimate be provided, based on the  
24      review comments. The PDP cost estimate requires costs to  
25      be identified for some additional activities and that the

1 cost include project management costs in addition to  
2 skilled labour and CNSC licensing fees. Having focussed  
3 on addressing the requirements of the order, SRB has not  
4 yet had the time necessary to complete these tasks.

5 Public information program: SRB feels it  
6 has made great strides in the last few years, to put in  
7 place a public information program, PIP, that would  
8 provide the public living in the vicinity of SRB, with  
9 information about the operations of SRB; a description and  
10 result of its monitoring programs and the public dose in  
11 comparison to that from other known sources, as well as  
12 attempting to reassure the public of their health and  
13 safety.

14 On December 11<sup>th</sup>, 2005, SRB provided CNSC  
15 staff with a revised PIP addressing all comments in the  
16 CNSC letter dated October 28, 2005. In this program, SRB  
17 expanded their target audience to include local special  
18 interest groups, local media, commercial neighbours and  
19 local businesses.

20 On April, CNSC staff provided their review  
21 of the PIP and their review staff stated that they were  
22 satisfied with the actions taken to date and that the  
23 proposed actions in the program addressed all the  
24 requirements of the public information program for the  
25 facility.

1                   On June 29<sup>th</sup>, a pamphlet designed by SRB  
2                   and reviewed by CNSC staff and some members of the public  
3                   was sent to approximately 12,000 Pembroke and surrounding  
4                   area residences, businesses, educational facilities,  
5                   health care establishments and other organizations. The  
6                   intent of this first pamphlet was to introduce the company  
7                   to members of the public who may not be aware of the  
8                   company's existence and to provide some information on the  
9                   risk associated with emissions, as well as providing clear  
10                  contact information for an interested reader to acquire  
11                  more detailed information.

12                  Our company has also developed a brochure  
13                  with respect to the effects of the products on the health  
14                  and safety in the environment. This brochure is readily  
15                  available to members of the public who expressed interest  
16                  and concerns.

17                  On September 6<sup>th</sup>, 2005, last year and again  
18                  this year on October 3<sup>rd</sup>, 2006, SRB provided city council  
19                  a presentation at an open city council session which was  
20                  advertised in the local paper in advance and televised.  
21                  SRB provided a general update on licensing activities and  
22                  other various licensing issues.

23                  SRB also designed a brand new website  
24                  providing public information on various issues regarding  
25                  our operations, annual compliance report, et cetera.

1 SRB, in the last year has met with members  
2 of local special interest groups that concern citizens in  
3 Renfrew County and lead environmental awareness and  
4 detection, on November 7<sup>th</sup> and on May 19<sup>th</sup>, to answer their  
5 questions and provide a tour of the facility.

6 On August 9, 2006, SRB held the first  
7 annual public information session, where all members of  
8 the public had the opportunity to ask questions of SRB  
9 directly. SRB agreed to perform additional sampling as  
10 part of the groundwater study and requested a licence  
11 amendment to formally introduce additional controls on the  
12 operations in order to provide resolution to a judicial  
13 review initiated by the concerned citizens.

14 SRB will continuously revise the brochure,  
15 pamphlet and website in order to reflect updated  
16 information as to address how activities at our facility  
17 could affect the environment, as well as the safety of  
18 people and workers in the vicinity.

19 On an annual basis, SRB will evaluate the  
20 effectiveness of the public information program and make  
21 changes as deemed necessary.

22 Groundwater Study: On November 16, 2005  
23 staff issued an order to SRB which was replaced by a  
24 licence condition in our current licence requiring SRB to  
25 comply with specific actions and measures to have an

1 independent third party perform a groundwater study. We  
2 hired the third party called EcoMetrix with expertise in  
3 performing assessments in nuclear radiation issues,  
4 including assessments of tritium in groundwater for other  
5 CNSC licensees.

6 EcoMetrix prepared the detailed terms of  
7 reference and following discussion with the CNSC staff,  
8 SRB and EcoMetrix finalized the terms of reference and  
9 completed the work.

10 The study included specific activities to  
11 provide a detailed and complete understanding of tritium  
12 in groundwater in the vicinity of the facility. As part  
13 of the study, samples were collected and analyzed from the  
14 following sources; 12 monitoring wells, seven new and five  
15 existing, seven residential wells, surface water into  
16 local rivers, depth integrated soil samples, precipitation  
17 samples and snow packs.

18 The level of tritium in all residential  
19 wells were well below the drinking water guideline of  
20 7,000. We've recently, a few weeks ago, just sampled the  
21 monitoring wells again and have confirmed that those  
22 levels are in fact, approximately 10 to 20 per cent lower  
23 than they were when we monitored them last, in February.

24 The level of tritium in monitoring wells  
25 were well below the Ontario drinking water guideline,

1       except for two wells onsite, NW06-1 and the well we  
2       recently drilled right in the stack area, NW06-10. NW06-1  
3       was approximately 60,000 becquerels per litre and one of  
4       the three wells that we drilled, the one right in the  
5       vicinity of the stack, was 130,000.

6               Following the review of the study, SRB took  
7       several actions which were reported to CNSC staff in the  
8       letter, where we would continue to gather data and supply  
9       staff with other sampling results. Sampling results  
10      included continued monthly testing of wells, routine  
11      monitoring of snow ditch surface water around the  
12      facility. SRB reported they would formalize these actions  
13      in a plan and provide to CNSC staff by March 31<sup>st</sup>, 2007,  
14      with a comprehensive report, testing results, assess  
15      possible impacts on the environment, make recommendation  
16      on future changes of testing that may be required.

17             On June 30<sup>th</sup>, CNSC staff provided their  
18      review of the study. Staff stated that the study had  
19      identified magnitude and extent of contamination by  
20      tritium, beyond the borders of SRB and confirmed that  
21      there is no immediate health risks to persons living in  
22      the area. CNSC staff also stated that the interpretation  
23      that stack emissions from SRB is the source of offsite  
24      tritium contaminations of groundwater for distances  
25      greater than 200 metres was reasonable. Staff also stated

1 that the possibility of a groundwater tritium plume of  
2 limited size, leaving the facility could not entirely be  
3 rejected and that additional work had to be undertaken by  
4 SRB onsite.

5 After discussions with CNSC staff, it had  
6 been agreed on July 17<sup>th</sup>, that SRB would formulate an  
7 Action Plan by August 31<sup>st</sup> to perform additional work  
8 required by CNSC, in addition to the work which had  
9 already been initiated in April. SRB submitted to staff,  
10 this Action Plan on August 31<sup>st</sup>, which has been rolled  
11 into our implementation plan.

12 The additional work includes continuation  
13 of testing that SRB had initiated and to review the study  
14 in April, in addition to measurement of rates of  
15 infiltration at each well, the measurement of water level  
16 rise and fall, in response infiltration events and soil-  
17 sampling survey.

18 On July, SRB received a request under  
19 section 12 to drill three additional wells onsite, which  
20 we've done.

21 On July 26<sup>th</sup>, as part of the "work  
22 required", SRB submitted to staff, detailed discussions  
23 and potential limitations on future use of land  
24 contaminated by tritium. These discussions confirmed that  
25 the City of Pembroke had a zoning bylaw requiring all

1 buildings in Pembroke to be serviced by municipal water.  
2 In these discussions, the City of Pembroke also confirmed  
3 that any development or redevelopment of the property  
4 would require the site plan agreement and that if the  
5 property was to be developed in the future for a  
6 residential subdivision that a re-zoning of the site would  
7 be required, which also requires that an environmental  
8 site assessment be conducted of the site and that all  
9 recommendations of the environmental assessment be  
10 followed prior to the issuance of a building permit.

11 Based on the sampling result gathered by  
12 SRB on August 15<sup>th</sup>, CNSC issued the designated order  
13 requiring SRB to immediately cease tritium processing and  
14 to submit a detailed report describing the specific  
15 actions and measures that will be taken to prevent or  
16 further mitigate direct contamination of the groundwater  
17 under the stacks.

18 SRB requested to be heard on the order and  
19 requested that the order be revoked or amended to allow  
20 SRB to operate under its license while an action plan can  
21 be developed to address CNSC new concerns and continue the  
22 work it had already begun to further define groundwater  
23 conditions on site and implement recommendations and  
24 future testing or changes to prevent further contamination  
25 under the stacks.



1                   The Commission rendered its decision on  
2                   September 5<sup>th</sup>, requiring SRB, by September 25<sup>th</sup>, to submit,  
3                   in writing, to the Commission for consideration by the  
4                   Commission at the Day One license hearing, a detailed  
5                   report describing the specific actions and measures that  
6                   will be taken to identify all sources of groundwater  
7                   contamination; contain those sources of groundwater  
8                   contamination; prevent or mitigate further direct  
9                   contamination of the soil and groundwater under the stacks  
10                  and remediate the contaminated groundwater, and an  
11                  implementation plan and schedule for the action described  
12                  in the report.

13                  The report was filed with the Commission as  
14                  part of our Day One license hearing on September 25<sup>th</sup>, as  
15                  requested. Our plan primarily consists of initiatives to  
16                  reduce stack emissions, surfacing various areas of the  
17                  site, and diverting rainfall from the vicinity of the  
18                  stacks from a roof to a storage tank, thereby preventing  
19                  it from infiltrating the ground.

20                  The concentration of tritium in the  
21                  accumulated water will be measured and the water will be  
22                  periodically released in a controlled manner to the sewer,  
23                  in accordance with the annual release limits of 200 GBqs.

24                  In addition, following the plan that we  
25                  submitted on September 25<sup>th</sup>, we had listed in the plan

1 that we would do monthly sampling of the sewage treatment  
2 plant. After reviewing that and considering comments from  
3 the public, we're undertaking to take daily measurements  
4 at the sewage treatment plant and also take measurements  
5 of the sludge at the sewage treatment. And that wasn't  
6 part of the plan or included, it's expanded.

7 The plan also comprises of ongoing sampling  
8 and analysis of tritium concentrations on site and work to  
9 define ground composition and infiltration  
10 characteristics.

11 We'd like the Commission to provide  
12 approval of the plan as soon as possible, as contractors  
13 are available to start construction immediately, in order  
14 to have construction completed between 8 to 12 weeks,  
15 based on the delivery of the customized tank and weather  
16 conditions.

17 SRB would like to request of the Commission  
18 that the order be amended, once the construction of the  
19 roof has been completed and the water diverted, to allow  
20 SRB to operate during periods of precipitation while SRB  
21 addresses other recommendations of the CMD H-16.B by May  
22 31<sup>st</sup>, 2007.

23 Other programs and documents. In the  
24 current licensing period we've also improved various other  
25 programs and documents. These programs and documents will

1 proactively continue to be improved in the future. We  
2 developed a maintenance program on March 31<sup>st</sup> which  
3 further improved, and revised again on June 20<sup>th</sup>; copies  
4 were sent to CNSC staff for review.

5 In April, SRB submitted to staff for review  
6 a new waste management program which we've since received  
7 comments from the CNSC on February 14<sup>th</sup> and again later in  
8 June. We've made new reviews of the radiation safety  
9 program. SRB developed a new emergency plan; document  
10 dated July 1<sup>st</sup>, and a copy was sent to CNSC staff and the  
11 Pembroke Fire Department. We've updated our safety  
12 analysis report on July 4<sup>th</sup> and a copy was sent to staff.

13 We believe that we've demonstrated that  
14 we're qualified to carry out the licence activities;  
15 maintain tritium releases to the environment below licence  
16 and regulatory limits; ensure a low-level of risk to  
17 health and safety of workers and the public; maintain low  
18 probability of large accidental releases and ensure  
19 regular public input is facilitated and considered.

20 We also believe that we have a sound  
21 communication plan which will help further familiarize the  
22 public, all the public, of our operations while reassuring  
23 them of their health and safety and addressing any  
24 concerns and questions in an open forum.

25 We are committed to the protection of the

1 environment and to allocate all the resources available to  
2 meeting the requirements of the order.

3 I also personally assure you that we will  
4 maintain this commitment and continuous improvement in all  
5 areas, not just by our words but by our actions as we've  
6 done in the last year. We will strive to achieve higher  
7 grades with increasing trends in all areas.

8 We manufacture product use for the safety  
9 and security of people all over the world. We have a  
10 contract and are sole supplier of tritium aircraft signs  
11 for Bombardier and many other large aerospace  
12 manufacturers to ensure safety of passengers.

13 We're the sole supplier of many products  
14 used by the Canadian and other NATO peace-keeping troupes  
15 worldwide, used for illumination and mine clearing  
16 purposes.

17 SRB is the only manufacturer of tritium  
18 light sources with the ability to safely recycle tritium  
19 gas for reuse in new products, ensuring the reduction of  
20 radioactive waste.

21 The only source of revenue for our company,  
22 here in Canada and abroad, is the manufacturing and sale  
23 of these tritium light sources and their associated  
24 assemblies.

25 SRB, again, would like to respectfully

1 request that the Commission consider the issuance of a  
2 licence for a three-year term which will allow us to  
3 allocate the time and resources to address the issues  
4 rather than the re-licensing.

5 We believe that we've demonstrated that  
6 we'll take the necessary precautions to ensure the health  
7 of the public and the environment are not at risk and that  
8 regular public input is facilitated and considered.

9 In addition, a three-year licence term will  
10 allow us to be more proactive and will allow us to provide  
11 the necessary time and resources to focus on actions  
12 required to address the designated order; ensure that all  
13 programs remain current to the latest safety standards and  
14 requirements; ensure financial ability to make further  
15 improvements above and beyond regulatory requirements;  
16 ensure our financial ability to fund financial guarantee  
17 for decommissioning.

18 Thank you.

19 **THE CHAIRPERSON:** Thank you, Mr. Levesque.

20 We will now turn to the presentation from  
21 CNSC staff. This is outlined in CMD documents 06-H16, 06-  
22 H16.B, 06-H16.C, and I will turn to Mr. Barclay Howden,  
23 the Director General of CNSC staff responsible for this  
24 file.

25 Mr. Howden, you have the floor sir.

1           **CMD 06-H16/06-H16.B/06-H16.C**

2           **Oral presentation by**

3           **CNSC Staff**

4                       **MR. HOWDEN:** Thank you. Good morning,  
5           Madam Chair, Members of the Commission.

6                               For the record my name is Barclay Howden.  
7           I'm the Director General of the Directorate of Nuclear  
8           Cycle and Facilities Regulation.

9                               With me today are Mr. Henry Rabski,  
10          Director, and Ms. Ann Erdman, Project Officer, both within  
11          the Processing and Research Facilities Division, plus the  
12          rest of the CNSC licensing team for this facility.

13                              For our presentation today Mr. Rabski will  
14          start, followed by Ms. Erdman. So I'll now pass the floor  
15          to Mr. Rabski.

16                              **MR. RABSKI:** Good morning, Madam Chair,  
17          Members of the Commission.

18                              For the record, my name is Henry Rabski,  
19          Director of the Processing and Research Facilities  
20          Division.

21                              SRB Technologies Canada Inc. has applied to  
22          renew their nuclear substance processing facility licence.  
23          CNSC staff will be presenting information with regard to  
24          the performance of the applicant and will give additional  
25          information to the Commission on other issues.

1                   For the purposes of the presentation the  
2 applicant will be referred to as SRBT.

3                   For this morning's presentation I will  
4 begin by providing an overview of the SRBT facility which  
5 will include a discussion on the recent history of the  
6 facility. The licensee's performance in various safety  
7 areas will be highlighted and various issues related to  
8 the licence renewal application will be addressed.

9                   CNSC staff will then provide information on  
10 its review of the information SRBT supplied in response to  
11 an amended order, originally issued by CNSC staff on  
12 August 15<sup>th</sup>, 2006 and amended by the Commission on  
13 September 5<sup>th</sup>, 2006.

14                   CNSC staff will not be making any  
15 conclusions or recommendations at this time regarding the  
16 renewal of the licence.

17                   SRBT's nuclear substance processing  
18 facility operating licence expires November 30<sup>th</sup>, 2006.  
19 SRBT has applied to have the operating licence renewed for  
20 a period of three years. CNSC staff's review of the  
21 application concludes that it meets the requirements set  
22 out in the applicable regulations made under the *Nuclear  
23 Safety and Control Act*.

24                   The SRBT facility processes gaseous  
25 tritium.

1                   The facility is located in a leased  
2                   industrial building in Pembroke, Ontario. A one-year  
3                   restricted licence was issued to SRBT after a two-day  
4                   public hearing in 2005 for a period commencing December  
5                   1<sup>st</sup>, 2005 and expiring on November 30<sup>th</sup>, 2006. The licence  
6                   was issued for a short period due to the poor  
7                   environmental protection performance of the licensee  
8                   during the previous licensing term. The licence issued  
9                   contained an action plan that required the licensee to  
10                  undertake various actions by specific dates. In addition,  
11                  the restrictions placed on the licence were to ensure that  
12                  the public was protected to a reasonable level.

13                  The applicant applied for a renewal of  
14                  licence NSPFOL-13-2006. The licence was amended on July  
15                  14, 2006 by SRBT to require the use of a chart recorder  
16                  that measures atmospheric releases of tritium in a  
17                  meaningful and measurable way to identify a potential loss  
18                  of control at the facility and for SRBT to make a report  
19                  to the CNSC.

20                  At this point I would like to turn the  
21                  presentation over to Ann Erdman, Project Officer for the  
22                  facility.

23                  **MS. ERDMAN:** Good morning, Madam Chair,  
24                  Members of the Commission. My name is Ann Erdman, Project  
25                  Officer for the SRBT facility.



1                   CNSC staff reviewed SRBT's past performance  
2                   in the following safety areas: environmental protection,  
3                   radiation protection, quality management, fire protection  
4                   operations and security. An overview of each area will be  
5                   presented. Please note that security will not be  
6                   discussed in this presentation. CMD 06-H16.A is the  
7                   subject of information relating to security.

8                   At the time of the hearing in 2005 the  
9                   environmental protection safety area received a "D"  
10                  rating. The four main reasons for the rating were  
11                  concerns over groundwater contamination, stack  
12                  performance, questions surrounding the measurements of  
13                  tritium emissions and the reliability of environmental  
14                  sample measurements.

15                  Since the licence was issued, December 1<sup>st</sup>,  
16                  2005, CNSC staff has observed improvements in the areas of  
17                  effluent monitoring and environmental monitoring. SRBT  
18                  has complied with the action plan to correct various  
19                  deficiencies. CNSC staff has also observed that SRBT is  
20                  complying with the restrictions placed on the licence in  
21                  2005.

22                  SRBT conducted a groundwater study earlier  
23                  this year and the results from the groundwater study have  
24                  led CNSC staff to rate the safety area an "E". The rating  
25                  in the safety area was "D" at the time of the last

1 hearing. The rating has moved to an "E" mainly because  
2 the groundwater has been found to be contaminated to such  
3 an extent that would be detrimental to its use by humans.  
4 An Order was issued in August 2006 to cease and desist the  
5 processing of tritium and take appropriate corrective  
6 actions.

7 The safety area environmental protection  
8 has been broken into several sub-areas I will now discuss  
9 further.

10 Groundwater: At the time of the hearing in  
11 2005 an order had been issued to SRBT to complete a  
12 groundwater study. The groundwater study was received by  
13 CNSC staff at the end of March 2006. CNSC staff's review  
14 of the study concludes that the groundwater contamination  
15 beyond the borders of the property on which SRBT is  
16 located is well below the Canadian Drinking Water  
17 Guideline of 7,000 becquerels per litre. One well at the  
18 edge of the property, however, had an average tritium  
19 concentration of about 58,000 becquerels per litre.

20 CNSC staff concluded that the study report  
21 did not adequately define the magnitude of tritium  
22 contamination of groundwater underlying the facility or  
23 consider the potential impact that contaminated  
24 groundwater may have on future land use, as required in a  
25 licence condition.

1 SRBT has since submitted this information.  
2 SRBT put in three additional wells to measure groundwater  
3 contamination and submitted the information on the wells  
4 to the CNSC staff on September 29<sup>th</sup>, 2006. The  
5 groundwater in the vicinity of the stacks had a tritium  
6 concentration of about 130,000 becquerels per litre.

7 SRBT has also taken soil samples and other  
8 measurements for groundwater analysis around the facility.  
9 The surface soil near the stacks was contaminated with a  
10 tritium concentration up to about 366,000 becquerels per  
11 litre.

12 A designated officer issued an Order to  
13 SRBT on August 15<sup>th</sup>, 2006 amended by the Commission that  
14 resulted in SRBT not processing tritium for several weeks  
15 in late August/early September, and now they only process  
16 tritium when precipitation is not occurring.

17 The Order also required SRBT to submit a  
18 report by September 25<sup>th</sup>, 2006 to identify and track all  
19 sources of groundwater contamination, contain the sources  
20 and prevent or mitigate further direct contamination of  
21 the soil and groundwater under the stacks, and also to  
22 remediate the groundwater. Plus, SRBT was to include an  
23 implementation plan and schedule for the work they had  
24 planned and SRBT was not to implement the plan until the  
25 Commission approves it.

1 SRBT submitted the report as required and  
2 the report has now been reviewed by CNSC staff and CNSC  
3 staff's review is found in CMD 06-H16.D. CNSC staff has  
4 reviewed the report and finds the implementation plan and  
5 schedule acceptable, with some recommendations. If the  
6 Commission decides to renew the licence, the licence  
7 should include the plan and schedule including deadlines.

8 Moving on, effluent monitoring and emission  
9 data, CNSC staff rated the effluent monitoring sub-area a  
10 "D" rating in 2005. CNSC staff has seen major  
11 improvements in this area and now rate it as meeting  
12 requirements. CNSC staff concludes the stacks are  
13 performing as required. SRBT installed a new effluent  
14 monitoring device to improve the measurement of tritium  
15 releases and engaged an independent contractor to verify  
16 the device's performance. CNSC staff has now received the  
17 report on the independent verification. CNSC staff's  
18 finding is that SRBT is now measuring the atmospheric  
19 releases accurately.

20 In 2005 CNSC staff reported SRBT's  
21 environmental monitoring results may not be reliable.  
22 Inadequate implementation of quality assurance/quality  
23 control procedures was one of the main reasons. CNSC  
24 staff observe a significant improvement in this area.  
25 CNSC staff do not yet, however, believe that SRBT has

1 demonstrated an ability to do the work themselves. So if  
2 the Commission decides to renew the licence, CNSC staff  
3 would recommend the continued use of a third party to  
4 continue the reliability in measurements.

5 The QA/QC program for environmental  
6 monitoring is now acceptable to CNSC staff. This sub-area  
7 is rated "B".

8 The next sub-area is emission control and  
9 is also rated "B". This area has been broken down into  
10 protection of the public and protection of the  
11 environment. CNSC staff observe improvements in this area  
12 of emission control but do not believe that enough work  
13 has been done in this area. CNSC staff conclude the  
14 public is being protected, but the evidence from the  
15 groundwater study lead to the conclusion that further work  
16 is needed in this area and SRBT has not taken all  
17 reasonable measures to prevent an unreasonable level of  
18 the risk to the environment.

19 SRBT committed -- submitted plans to take  
20 measures to protect the environment and if the Commission  
21 decides to renew the licence, SRBT should be required to  
22 monitor and track the groundwater contamination and other  
23 items to identify the effectiveness of the proposed plan.

24 Let's move into another safety area,  
25 radiation protection.

1                   At the time of the last hearing in 2005,  
2                   SRBT was required to document their Waste Management  
3                   Program and also revise the radiation protection document.  
4                   The rating for both the program and implementation for  
5                   radiation protection was rated "B". The program and  
6                   implementation continue to be rated "B". SRBT revised  
7                   their Radiation Protection Program document this licensing  
8                   period and CNSC staff concludes that the program meets  
9                   requirements.

10                   SRBT continues to keep the radiation doses  
11                   to the workers well below the regulatory dose limit.

12                   The Waste Program was received and reviewed  
13                   by CNSC staff and comments sent to SRBT very recently on  
14                   October 6, 2006. The deficiencies in the programs are  
15                   ones that do not pertain to protecting the environment and  
16                   the health and safety of persons.

17                   Moving onto quality management, the Quality  
18                   Management Program and implementation is rated a "B",  
19                   meets requirements. The remaining action items from a  
20                   quality audit performed in 2004 have now been closed off  
21                   during this licensing period.

22                   Fire protection. At the time of the  
23                   hearing in 2005, the program and implementation was rated  
24                   a "C", below requirements. Many deficiencies identified  
25                   by CNSC staff in inspections in 2000 and 2004 had not been

1 corrected in a timely fashion. SRBT has submitted a  
2 revised Fire Protection Program in April 2006 that is  
3 currently under review by CNSC staff.

4 SRBT has corrected many of the findings.  
5 CMD 06-H16.C identifies that one outstanding item is the  
6 installation of the sprinkler system. SRBT recently  
7 notified CNSC staff that a sprinkler system has now been  
8 installed at their location.

9 This safety area, operations, deals with  
10 all the operations except for those aspects which may be  
11 linked to the groundwater issue. CNSC staff concludes  
12 that SRBT has improved in the area of operations. At the  
13 time of the previous hearing, SRBT had not been correcting  
14 deficiencies in a timely fashion and they had not  
15 demonstrated they could monitor tritium releases with any  
16 reliability. As discussed earlier in this presentation,  
17 CNSC staff has observed improvements in the areas of  
18 effluent releases and stack performance.

19 One incident occurred in May 2006 which was  
20 reported to the CNSC staff in a timely manner and CNSC  
21 staff is satisfied with the action SRBT has taken.

22 Moving onto some other issues, during this  
23 licensing period SRBT has revised its Public Information  
24 Program and CNSC staff now considers it acceptable.

25 CNSC staff has reviewed and revised the

1 revised Preliminary Decommissioning Plan submitted by SRBT  
2 in March 2006.

3 The one item outstanding is the cost  
4 estimate. The current licence requires a financial  
5 guarantee to be in place by October 31<sup>st</sup>, 2006. SRBT has  
6 submitted a formal proposal for the financial guarantee on  
7 August 7<sup>th</sup>, 2006 but CNSC staff has not assessed the  
8 proposal as the cost estimate is required before the  
9 proposal is assessed. SRBT has recently informed CNSC  
10 staff that they will not be able to have the financial  
11 guarantee in place by October 31<sup>st</sup>.

12 With respect to cost recovery fees, SRBT is  
13 up to date with all the regulatory fees at this time.

14 The proposal to renew the operating licence  
15 has been assessed as to the applicability of the *Canadian*  
16 *Environmental Assessment Act*, or CEAA. Subsection 24(2)  
17 of the *Nuclear Safety and Control Act*, with respect to the  
18 renewal of the licence, is not prescribed for the purposes  
19 of paragraph 5(1)(d) of the *Canadian Environmental*  
20 *Assessment Act* in the law list regulation. There are no  
21 other CEAA triggers for this project that involve the  
22 CNSC.

23 Therefore, an environmental assessment  
24 under the CEAA is not required for the renewal of the SRBT  
25 operating licence.



1                   At this time, CNSC staff is not in a  
2                   position to make a recommendation to the Commission with  
3                   respect to the renewal of the Nuclear Substance Processing  
4                   Facility Operating Licence issued to SRBT. Prior to the  
5                   conclusion of the hearing, CNSC staff will summarize their  
6                   conclusion and make a recommendation on SRBT's application  
7                   to renew the nuclear substance processing facility  
8                   licence.

9                   Thank you.

10                  **MR. HOWDEN:** Barclay Howden speaking for  
11                  the record.

12                  Madam Chair, that concludes our  
13                  presentation and staff is prepared to respond to  
14                  questions.

15                  **THE CHAIRPERSON:** Thank you.

16                  Before moving to the floor for questions,  
17                  we'll turn to the oral presentation from the Concerned  
18                  Citizens of Renfrew County and Area. Dr. Hendrickson is  
19                  with us today and his submission is outlined in CMDs 06-  
20                  H16.2, 06-H16.2A.

21                  Dr. Hendrickson, welcome, and the floor is  
22                  yours, sir.

23  
24                  **06-H16.2 / 06-H16.2A**

25                  **Oral presentation by the**

1       **Concerned Citizens of**  
2       **Renfrew County**

3                       **DR. HENDRICKSON:** Thank you, Madam  
4       President, Members of the Commission, ladies and  
5       gentlemen. My name is Ole Hendrickson. I'm representing  
6       Concerned Citizens of Renfrew County which is a citizens  
7       group based in Pembroke, Ontario.

8                       I am accompanied today by Mr. Hugh  
9       Benevides, a staff lawyer with the Canadian Environmental  
10      Law Association.

11                      CCRC members have intervened in hearings  
12      related to operations of SRB Technologies (Canada) Inc.  
13      since December 1990. We appreciate the opportunity to  
14      intervene in this hearing today.

15                      CCRC realizes this is not in accordance  
16      with usual procedure and we appreciate the variance in the  
17      Rules and the recognition that our group has knowledge and  
18      expertise to contribute at this point in the licensing  
19      process.

20                      In the interest of brevity, I will only  
21      discuss some of the main issues raised in our written  
22      submissions.

23                      We begin by noting the significant action  
24      taken by CNSC staff since the hearing of November 30<sup>th</sup>  
25      last year. CNSC staff highlighted the seriousness of the

1 radioactive contamination issues near SRB by including  
2 licence conditions related to a study of groundwater  
3 tritium levels. Staff's thorough critique of SRB's  
4 groundwater study identified significant uncertainties  
5 about the behaviour of tritium near the facility which led  
6 to the issuance of a Cease and Desist Order in August  
7 2006.

8 Staff gave SRB a grade of "E" for  
9 environmental protection in CMD 06-H16.C which focused  
10 further public attention on this facility.

11 Pembroke citizens now know that there is a  
12 real problem associated with SRB's operations and are  
13 looking for further action by the CNSC to address these  
14 problems.

15 We also note the Commission's July 14<sup>th</sup>  
16 licence amendment that requires SRB to report excess  
17 tritium emissions as shown on the company's real-time  
18 chart recorder. This gave the public back an important  
19 safeguard against loss of control of SRB's operations.

20 However, SRB's 15 years of operation have  
21 left Pembroke with a legacy of radioactive contamination,  
22 have compromised our health and have stained the  
23 reputation of our city and the Commission itself. We  
24 believe the record is clear that SRB has not made adequate  
25 provision for protection of the environment. There is no

1 alternative conclusion for the Commission to reach.

2 The Commission cannot, therefore, issue a  
3 licence according to section 24(4)(b) of the *Nuclear*  
4 *Safety and Control Act*.

5 The Commission cannot prevent further  
6 unreasonable risks to the public if SRB is allowed to  
7 continue operating in its current location. SRB has no  
8 buffer zone around its facility. It does not come close  
9 to meeting moderate standards for a tritium handling  
10 facility. It lacks effective tritium containment systems.  
11 Emissions and environmental levels of tritium remain  
12 startlingly high even under restricted operations.  
13 Evidence is lacking that emissions have been reduced  
14 sufficiently to avoid further worsening of the groundwater  
15 contamination problem.

16 As both staff and licensee stated at the  
17 opportunity to be heard, models cannot predict the  
18 behaviour of SRB's airborne tritium emissions within 200  
19 metres of its stacks. Within this 200-metre circle there  
20 are businesses, parking lots, walking routes and a public  
21 skating arena. A residential zone begins just outside 200  
22 metres.

23 Pembroke residents rely on the CNSC to  
24 ensure that their health and property are secure.  
25 Uncertainty about radioactive exposures and risks is

1 unacceptable.

2 Public exposures come mostly from breathing  
3 contaminated air. No tritium standard exists to ensure  
4 safe and clean air. We stress that no model exists that  
5 can accurately predict air concentrations near SRB.  
6 Compared to radiation doses from groundwater, doses from  
7 breathing contaminated air are far higher, are completely  
8 avoidable and affect many more people. We ask, why are  
9 staff, Commissioners, SRB and consultants placing so much  
10 attention on groundwater? Yes, we have an extremely  
11 serious groundwater contamination problem. The 130,000  
12 becquerel per litre tritium level in the new well at the  
13 base of the stacks is more than a dozen times higher than  
14 the 7,000 becquerel per litre Health Canada Drinking Water  
15 Guideline but this is only an indicator of a much bigger  
16 problem.

17 There remains great uncertainty about what  
18 happens to the elemental tritium gas, or HT, that is the  
19 main substance released by SRB. SRB releases roughly 10  
20 times more HT than tritiated water, or HTO. When a plume  
21 of HT comes in contact with the ground, soil micro-  
22 organisms rapidly convert this gas to HTO via hydrogenates  
23 enzyme reactions. HTO is more than 10,000 times more  
24 dangerous than HT. This makes the soil itself a major  
25 source of HTO. Residents receive a double dose of HTO,

1 both from the soil and directly from the stack plume.

2 On a warm, sunny day, local residents  
3 outside on their lawns will be exposed to significant  
4 amounts of HTO transpired through grass and other  
5 vegetation. Nursing infants, now recognized as the most  
6 vulnerable group near SRB, crawl on the ground at only a  
7 few tens of centimetres above the soil surface and will be  
8 maximally exposed to HTO emitted from the soil.

9 Current environmental monitoring programs  
10 that rely on passive air samplers do not account for these  
11 risks. SRB samples air at a height of three metres, far  
12 above the height where humans breathe.

13 HTO is also converted into organically-  
14 bound tritium, or OBT, found in soil organic matter and  
15 plants. Humans eat OBT-contaminated foods and OBT becomes  
16 bound to long-lived molecules such as DNA delivering doses  
17 over long-time periods to reproductive organs and other  
18 key parts of the body. These phenomena are complex and  
19 are not adequately accounted for in the CNSC's current  
20 regulatory regime or in SRB's dose models.

21 While more study might clarify risks, our  
22 group considers any further studies of radiation exposure  
23 in Pembroke to be a violation of scientific ethical  
24 principles that do not allow experiments involving  
25 exposure of humans to hazardous substances to be conducted

1 without informed consent. In plain language, we do not  
2 wish to be treated as guinea pigs any longer.

3 A large body of scientific literature  
4 indicates that tritium poses very serious risks at levels  
5 far lower than those on which SRB's emission limits are  
6 based. The 2003 report of the U.K. Committee Examining  
7 Radiation Risks of Internal Emitters, the CERRIE Report,  
8 calls for wider recognition of tritium's hazards; in  
9 particular, a 15-fold increase in HTO's dose coefficient  
10 with OBT's dose coefficient fivefold greater than that for  
11 HTO and for research to be commissioned to investigate  
12 possible teratogenic risks from high transient HTO  
13 exposures. To be reasonably conservative, current tritium  
14 dose coefficients need to be multiplied by 15. We note  
15 that a minority on this U.K. committee felt that even this  
16 15-fold increase was not conservative.

17 In our view, CNSC staff should not give  
18 reassurances that there are no human health impacts  
19 associated with the levels of tritium to which Pembroke  
20 residents are exposed. There has been no scientific study  
21 to examine whether effects, such as elevated incidents of  
22 birth defects, miscarriages or cancers can be found near  
23 the SRB facility. This represents another major area of  
24 uncertainty. Is CNSC willing to organize a health study  
25 to examine this issue?





1                   during the occurrence of any type of  
2                   precipitation including rain, drizzle,  
3                   freezing drizzle, freezing rain, hail  
4                   and snow."

5                   We note that when SRB describes this Order  
6                   it does not refer to use, only processing. Some  
7                   activities that use tritium might not be interpreted as  
8                   processing but nonetheless release significant amounts of  
9                   tritium, notably bulk splitting.

10                  This raises various questions: Is bulk  
11                  splitting captured within processing? We think it should  
12                  be in order to meet the purpose of the *Nuclear Safety and*  
13                  *Control Act*. Regardless of what is considered processing,  
14                  bulk splitting should not be done when it is raining. We  
15                  recall the incident last year when large amounts of  
16                  tritium were released during a bulk splitting problem.

17                  So does SRB refrain from bulk splitting  
18                  during precipitation events? Who judges whether a given  
19                  precipitation event such as drizzle is sufficient to  
20                  warrant cessation of processing? What concentrations of  
21                  tritium in precipitation have been observed since the  
22                  modified Order went into effect? How is CNSC verifying  
23                  compliance with the modified Order?

24                  We emphasize that a focus on reducing  
25                  tritium in the groundwater under the stacks must not be

1 allowed to divert attention from issues of widespread  
2 tritium contamination and excess human exposure to  
3 airborne radiation in Pembroke. Precipitation events, fog  
4 and high humidity are likely to contribute  
5 disproportionately to elevated inhalation doses of  
6 tritium, as well as increased groundwater contamination.

7 We seek the Commission's help in clarifying  
8 trends in stack emissions from SRB. The company claims  
9 large emissions reductions prior to November 2005 but CMD  
10 05-H26.C which was prepared for last year's hearings,  
11 states that:

12 "In a recent letter dated November 17,  
13 2005, and orally on November 18<sup>th</sup>,  
14 2005, SRBT informed the CNSC staff  
15 that between scheduled maintenance,  
16 the facility stacks may not be  
17 performing to their design  
18 specification and that the tritium  
19 emission monitoring system may not be  
20 providing reliable measurements of the  
21 concentration and quantity of tritium  
22 released to the environment."

23 Was this information that SRB provided in  
24 November of last year in error? Is there new evidence  
25 that SRB's monitoring of tritium emissions prior to

1 November 2005 was reliable?

2 If so, we would appreciate hearing this  
3 evidence.

4 Whatever the trend in stack emissions, it  
5 is a fact that SRB's airborne tritium emissions were  
6 astronomically high for many years.

7 CNSC staff scientist Steve Mihok has  
8 calculated that in 1998 and 2000, SRB was responsible for  
9 over half of all HTO emissions in Canada. This included  
10 every nuclear power plant in the country. On top of that,  
11 SRB released roughly 10 times more HT than HTO.  
12 Unsurprisingly, tritium contamination in Pembroke soil and  
13 groundwater is widespread. This contamination does not  
14 stop at the edge of the plant's rented property. It  
15 continues for kilometres in all directions.

16 A well on private property near SRB is  
17 contaminated at 1,800 becquerels per litre of tritium.  
18 This is more than 25 per cent of the 7,000 becquerels per  
19 litre Health Canada Drinking Water Guideline.

20 At the August 28<sup>th</sup> hearing, Dr. Thompson  
21 cited that 25 per cent level as a guide for protecting the  
22 groundwater resource.

23 The model used by SRB's consultants,  
24 EcoMetrix, predicts that areas more than one kilometre  
25 southeast and northwest of SRB stacks could show

1 groundwater contamination in excess of this 25 per cent  
2 level.

3 Other jurisdictions would not accept that  
4 tritium level as either negligible or trivial. It is more  
5 than twice the limit that would trigger regulatory action  
6 in the U.S.

7 We have seen no evidence that tritium  
8 contamination levels will go down if emissions are allowed  
9 to continue. In fact, we are aware of limited evidence to  
10 the contrary.

11 As part of our judicial review application,  
12 CCRC asked for wells to be sampled after snow melt. The  
13 limited data we have seen for the period of restricted  
14 operations that covers from November 2005 to April 2006  
15 indicates that contamination may continue to increase even  
16 under a restricted emissions regime. We are aware that  
17 sampling of groundwater wells, precipitation soils, et  
18 cetera, has continued since last April.

19 SRB's report mentions but does not provide  
20 more recent data, including soil samples to be analyzed by  
21 a third party with results expected by September 30<sup>th</sup>,  
22 2006 and data on precipitation, standing water near wells,  
23 and so forth, provided to CNSC staff in mid-August.

24 Our group has requested these data directly  
25 from SRB, but SRB has not provided them. This has

1 hindered our ability to prepare for and participate  
2 effectively in today's hearing.

3 Mr. Levesque has referred to new data in  
4 his presentation. We think the public deserves to see  
5 these data.

6 As a scientist, I'm personally dismayed at  
7 the lack of a thorough scientific approach to  
8 investigating and describing Pembroke's contamination  
9 problem. SRB should survey soils apart from the site that  
10 they occupy.

11 We have recently become aware of additional  
12 wells on Boundary Road that were missed during the  
13 groundwater study. We ask the CNSC to use its powers  
14 under section 46 of the *Nuclear Safety and Control Act* and  
15 determine by means of a public hearing whether  
16 contamination in excess of the prescribed limit by a  
17 radioactive nuclear substance has occurred in the vicinity  
18 of the SRB facility.

19 SRB's proposal to catch stack drippings and  
20 divert them to the river through Pembroke's sewer system  
21 is completely unacceptable. If SRB emits tritium during a  
22 precipitation event, that tritium will not necessarily  
23 deposit on either the building roof or on the proposed  
24 canopy surrounding the stacks.

25 We now know that the stacks themselves are

1 extremely contaminated with tritium. A new canopy could  
2 itself become contaminated and aggravate tritium  
3 deposition, including through enhanced oxidation of  
4 elemental tritium.

5 The uncertainty of tritium behaviour in and  
6 around this proposed new infrastructure means that SRB's  
7 plan is nothing more than wishful thinking. Discharging  
8 tritium-laden precipitation to the municipal sewer would  
9 contaminate municipal infrastructure, contaminate dried  
10 sewage destined for land treatment and contaminate the  
11 Ottawa River itself. It would pose unknown but  
12 potentially serious risks to municipal workers.

13 We suggest that laws other than the *Nuclear*  
14 *Safety and Control Act* may apply in the matter of this  
15 proposal. Federal agencies other than the CNSC and  
16 jurisdictions other than the federal government may have  
17 legitimate interest in the question of whether it is  
18 acceptable to use municipal infrastructure to discharge  
19 toxic substances.

20 The Commission and the public deserve to  
21 know the expert views of other federal and provincial  
22 regulatory agencies on this matter.

23 On page 3 of its report, SRB states that in  
24 April 2006 it released 80 litres of water contaminated at  
25 a tritium concentration of 119 million becquerels per

1       litre to the sewer system. This extremely high level of  
2       tritium resulted from the company's stack washing  
3       operations.

4                       This raises a serious concern for our  
5       group. We were not aware that such extreme levels of  
6       radioactive water were being discharged by SRB. We are  
7       astounded that stack washing was done without the  
8       knowledge or approval of the CNSC. This was apparently  
9       the first time SRB discharged such high tritium levels to  
10      Pembroke's municipal sewer system.

11                      We asked the Commission whether this  
12      violated Condition 3.1 of SRB's licence which states:

13                               "The licensee shall not modify...the  
14                               facility's operating conditions,  
15                               methods or procedures without prior  
16                               written approval of the Commission or  
17                               a person authorized by the  
18                               Commission."

19                      This stack washing incident makes us aware  
20      that SRB has provided no details on its monitoring and  
21      reporting regime for liquid emissions in its proposed  
22      plan. We would appreciate a description of how SRB  
23      monitors liquid emissions. We would like information on  
24      what operations other than stack washing are resulting in  
25      significant tritium discharges to the municipal sewer

1 system.

2 SRB unfortunately has long viewed its CNSC  
3 licences as a right to pollute the environment. This  
4 imposes an enormous regulatory burden on the CNSC and  
5 Canadian taxpayers. It tarnishes the CNSC and Canada's  
6 environmental protection regime as a whole.

7 In this light, we are dismayed by the CNSC  
8 staff conclusion in CMD 06-H16.D that:

9 "Collection of the precipitation and  
10 release to the sewer system will limit  
11 the risk to the environment under the  
12 stack to a reasonable level."

13 That staff finds SRB's plan reasonable  
14 suggests significant and fundamental flaws in Canada's  
15 nuclear regulatory system.

16 Commissioners will recall the extensive  
17 discussions during the August 28<sup>th</sup> hearing of how long  
18 tritium might take to migrate through groundwater to the  
19 Muskrat River, a tributary of the Ottawa River, and  
20 whether tritium would decay to insignificant levels during  
21 this time. Why then are we even considering a proposal by  
22 SRB to discharge radioactive contaminants directly to the  
23 Ottawa River? It is symptomatic of a serious problem if a  
24 regulatory agency becomes so fixated on one particular  
25 aspect of a problem that it ignores its broader mandate.



1 Protection of the environment and the health and safety of  
2 persons are inseparable.

3 Dealing with a contamination issue in the  
4 area under the stacks by allowing widespread public  
5 radiation exposure through the sewer system would be  
6 irrational and immoral.

7 To repeat a remark made by Dr. Thompson at  
8 the 28<sup>th</sup> of August hearing, the issues that need to be  
9 resolved and that have been discussed today are complex  
10 and would not be resolved quickly.

11 Before concluding, I would like to recall  
12 that our group has posed a number of questions in this  
13 intervention. Section 21(1) of the CNSC's Rules of  
14 Procedure states that:

15 "The Commission may permit  
16 participants to question one another  
17 and any witnesses."

18 I respectfully request that the Commission  
19 provide us with an opportunity to engage in discussion and  
20 questioning after the conclusion of this formal  
21 presentation.

22 Similarly, I encourage you to be  
23 forthcoming with your questions. We have made many more  
24 points in our written submissions than I have been able to  
25 touch upon in this brief presentation. I would welcome

1 the opportunity to elaborate on some of these points.

2 It is not possible in a brief period of  
3 time to do justice to the large body of evidence that  
4 suggests that SRB has been incapable in the past of making  
5 adequate provision for the protection of the environment.

6 Furthermore, there is insufficient  
7 indication that they can make adequate provision in the  
8 future.

9 It follows, in keeping with section 24(4)  
10 of the *Nuclear Safety and Control Act*, that it is not  
11 appropriate that a new licence be issued or renewed as the  
12 case may be.

13 Thank you again for the opportunity to  
14 intervene today.

15 **THE CHAIRPERSON:** Thank you very much, Dr.  
16 Hendrickson.

17 I would like to note for the record that  
18 Commission did allow you considerable amount of time to  
19 discuss it. In fact, it was over 23 minutes. So I just  
20 want to note that there was considerable time allowed for  
21 your intervention today.

22 We will start the questioning for the three  
23 parties before us today: the SRBT, CNSC staff and the  
24 Concerned Citizens of Renfrew County. I would ask  
25 Commission Members to be as specific as possible to whom

1       you address the questions so that we have the proceedings  
2       move forward as judiciously as possible.

3               I will make a judgment with regards to the  
4       questioning requested by Dr. Hendrickson at the end of the  
5       questioning by Commission Members, which will take several  
6       rounds and involve quite a bit of work at this time.

7               So I would like to start then with Dr.  
8       McDill in terms of her questioning on Round One.

9               **MEMBER McDILL:** Thank you. I have several  
10       questions, but I would like to start, I think, with the  
11       issue of the sewer, and I would like all three parties to  
12       comment.

13               I think I would like to start, if possible,  
14       with staff and ask their scientific opinion, please, of  
15       the use of the sewage system and the environment in which  
16       to place the collected water.

17               Thank you.

18               **MR. HOWDEN:** Barclay Howden speaking, for  
19       the record.

20               I am going to ask Dr. Thompson to start  
21       with the response in general and then it will be passed to  
22       Caroline Purvis, our Radiation Protection Specialist, to  
23       speak to the specifics of this particular issue.

24               **DR. THOMPSON:** Patsy Thompson, for the  
25       record.

1           The CNSC licenses many types of activities.  
2           There are Class 1 facilities such as SRB, but there are  
3           also a number of licences for nuclear substances used in  
4           various places like hospitals and research laboratories.

5           In recognition of those activities, there  
6           are limits, levels that are permitted to be released to  
7           various points including, for example, to ventilation  
8           systems as well as to municipal sewers. This is something  
9           that the CNSC authorizes -- has authorized for a number of  
10          years, and the manner in which the CNSC authorizes these  
11          releases to municipal sewers is consistent with practices  
12          internationally and with levels identified by the  
13          International Atomic Energy Agency in regulatory -- in  
14          standards and guides.

15          The limits essentially for releases to  
16          sewers consider the potential exposure to workers, the use  
17          of the sludge that may be generated by the activities in  
18          the sewage treatment plant.

19          At this point, I will ask Caroline Purvis,  
20          our Radiation Safety Specialist, to provide more  
21          information on how the International Atomic Energy Agency  
22          derived values for releases of tritium to sewer.

23                 **MS. PURVIS:** For the record, my name is  
24          Caroline Purvis. I am the Acting Director of the  
25          Radiation Protection Division.

1                   Just to add to Dr. Thompson's comments,  
2                   currently in the SRB operating licence, there is a release  
3                   limit for tritium water soluble to the sewer system of 200  
4                   gigabecquerels per year. This limit, the 200  
5                   gigabecquerel release limit was determined by CNSC  
6                   dosimetry specialists and it was based on site-specific  
7                   information regarding historical annual liquid releases  
8                   and, of course, on the international guidance Dr. Thompson  
9                   spoke of on acceptable clearance levels for liquid  
10                  releases of tritium.

11                  The IAEA guidance material recommends a  
12                  generic clearance level for liquid releases of tritium of  
13                  1 Terabecquerel per year. That's one times 10 to the 12  
14                  becquerels per year.

15                  Models for assessing the release of  
16                  radionuclides to the sewers have been used to derive this  
17                  generic clearance level for liquid discharges and they've  
18                  used very conservative assumptions on the basis of a dose  
19                  of 10 microsieverts per year to an exposed member of the  
20                  public. The clearance levels were derived with the  
21                  intention of ensuring that if complied with, annual doses  
22                  to individual members of the public arising from any  
23                  single practice will not exceed 10 microsieverts per year.  
24                  Since the SRB release limit is one-fifth of the generic  
25                  clearance level of 1 terabecquerel, CNSC staff is

1 currently satisfied that the doses to members of the  
2 public from this mode of release to the sewers is  
3 extremely small.

4 Thank you.

5 **MEMBER McDILL:** I have a follow-up, but I  
6 think I'll proceed with the first question first because  
7 it would be too complicated. SRBT?

8 **THE CHAIRPERSON:** SRBT, would you like to  
9 comment on the question that Dr. McDill posed to the  
10 staff?

11 **MR. LEVESQUE:** No.

12 **MEMBER McDILL:** The intervenor then.

13 **THE CHAIRPERSON:** Dr. Hendrickson, would  
14 you like to comment with regards to the establishment of  
15 the standards for the release into the sewer and the  
16 environment, as per Dr. McDill's question?

17 **DR. HENDRICKSON:** Yes. Thank you, Madam  
18 President.

19 I am just curious in this assessment of the  
20 levels that are permissible. The 1 terabecquerel, does  
21 that take into account the volume of the -- the flow  
22 volume and dilution volume in the treatment plant? How  
23 was this 1 terabecquerel -- can it be scaled to the fact  
24 that Pembroke is a very small city and would not have the  
25 same type of volume of flow through its facility as

1 another city might?

2 **MEMBER McDILL:** My follow-up question was  
3 not unlike that, so perhaps we could direct that back to  
4 staff.

5 Thank you.

6 **MR. HOWDEN:** Barclay Howden speaking.

7 I am going to ask Patsy Thompson to start  
8 with our response.

9 **DR. THOMPSON:** Patsy Thompson, for the  
10 record.

11 The assessments of releases to sewer from  
12 the SRB facility were conducted probably around 1999-2000  
13 at the time that the licence was renewed. An  
14 environmental assessment was conducted at that time.  
15 Staff used information specific to the municipality of  
16 Pembroke in terms of the volume of water being handled by  
17 the sewer system.

18 At this stage I will ask Caroline Purvis to  
19 provide more information on the parameters used by the  
20 IAEA in deriving the clearance levels proposed.

21 **MS. PURVIS:** Caroline Purvis, for the  
22 record.

23 There is a number of parameters, of course,  
24 that are used in the determination of the models that will  
25 be used for the generic clearance levels. Ideally,

1 clearance levels should be derived using assumptions in  
2 model parameters that are appropriate to the particular  
3 practice in the situation of interest.

4 A judgment was made by our dosimetry  
5 specialist as to whether the methodology used for the  
6 generic clearance levels is suited for local conditions  
7 surrounding SRB and given the information at the time, it  
8 was considered to be appropriate to apply those generic  
9 levels.

10 There is a vast description in the  
11 international guidance material on the various models and  
12 exposure pathways that may be used for determination of  
13 dose to members of the public and that does include the  
14 exposure of sewer system workers, treatment of sewage  
15 which may result in contaminated sludge, sludge that may  
16 be treated and used as fertilizer. And I could go on, but  
17 there are many pathways that were considered and, at the  
18 time in which this release limit was determined, our  
19 dosimeter specialist determined that the generic clearance  
20 levels were appropriate for use at SRB.

21 **MEMBER McDILL:** Does that answer the  
22 intervenor's question?

23 **DR. HENDRICKSON:** Thank you. Ole  
24 Hendrickson, for the record.

25 I'm still, frankly, a bit unclear about



1           whether a careful examination of the -- that would allow -  
2           - the question of whether these generic clearance levels  
3           are appropriate for the size of treatment plant that we  
4           have has been done. I would also note that we have a  
5           brand new treatment plant in Pembroke and at the time that  
6           the environmental assessment was done, that might have  
7           been based on our previous treatment plant.

8                       **MEMBER McDILL:** If I could ask staff  
9           whether that information on the generic levels and the  
10          previous municipal sewer treatment plant are available for  
11          citizens of Renfrew to examine or for the intervenor to  
12          examine?

13                      **MR. HOWDEN:** Barclay Howden speaking.

14                      In speaking with Dr. Thompson, we would  
15          offer to prepare information more on this issue for Day  
16          Two, so that people will then have that information, to  
17          provide maybe the more specific information on how the  
18          generic criteria was applied in this particular case,  
19          because it's clear people want more details.

20                      **MEMBER McDILL:** Thank you.

21                      **THE CHAIRPERSON:** Perhaps if you agree, Dr.  
22          McDill, I'm just going to look at our other Commission  
23          Members and see if there were specific questions about the  
24          sewer area that were looked at.

25                      I'll go to Mr. Levesque and then I'll just

1 -- because I think it's important to sort of treat these  
2 as blocks of questions and then that would be helpful, I  
3 think, for everyone to understand. So Mr. Levesque and  
4 then, I believe, Mr. Graham has a question.

5 **MR. LEVESQUE:** Yes, I'd just like to add a  
6 few things. Despite being a fifth of the criteria, we did  
7 our own investigation to see what the levels at any one  
8 time would be at the sewage treatment plant and the  
9 associated dose to a worker at the plant.

10 First, it's important to note that the 200  
11 GBq limit that we have wouldn't be released all in one  
12 single release. This would be divided and released at  
13 least on a weekly basis in order to reduce absorbed dose  
14 as much as possible, in one single hit, and perhaps even  
15 more frequently than once a week, although there is no  
16 requirement to do so.

17 We've looked at worst case scenario flow at  
18 the sewage treatment plant. We know that our operation  
19 would be releasing these, more than likely Monday to  
20 Friday. We know that the flow at the plant during Monday  
21 to Friday is much higher than the average flow on  
22 weekends, which is another good thing. But in addition to  
23 that, the dose that we've calculated for an individual is  
24 much less than one -- than the 10 microSievert, in fact  
25 less than 1 microSievert per year, to an individual.

1                   We've already tested some water at the  
2                   sewage treatment plant. The water that we got from one  
3                   sample or grab sample was 139 becquerels per litre.  
4                   Again, as I've stated in my presentation, to ensure that  
5                   there's no problem in the sewage treatment plant for the  
6                   public as well, to ensure their assurance, we're going to  
7                   do daily samples at the sewage treatment plant, which will  
8                   be aggregate over the week. We've talked to the manager  
9                   at the plant. We've also undertaken -- taken samples of  
10                  the sludge at the plant to see what the levels are in  
11                  that. So we've done our homework despite being below the  
12                  licence criteria.

13                                   Thank you.

14                   **THE CHAIRPERSON:** Mr. Graham, I think you  
15                   have a follow-up call. We'll come back to Dr. McDill in  
16                   the end.

17                   **MEMBER GRAHAM:** Yes, thank you. I do have  
18                   a couple of questions.

19                                   In the ---

20                   **THE CHAIRPERSON:** I'm sorry, Mr. Graham.  
21                   It is strictly on the sewer.

22                   **MEMBER GRAHAM:** Yes?

23                   **THE CHAIRPERSON:** Yes, please.

24                   **MEMBER GRAHAM:** With regard to the  
25                   establishment of standards, where my concern is, is that -

1 - are you -- do you discharge on a daily basis and do you  
2 ever exceed -- have you ever exceeded the 200 GBq that you  
3 mentioned? Has this ever been -- on a daily basis during  
4 the week -- you say you do it during the week, but is it a  
5 continuous discharge to the sewer system during the week?  
6 And what is the sum total for the year?

7                   Maybe as a lay person I'm asking the wrong  
8 question because I'm not really clear on contamination,  
9 but after it goes through the sewer system, sewage  
10 treatment plant; it's got to go somewhere else. And my  
11 concern is, first of all, did you ever exceed the 200 GBq  
12 and also is it done on a daily basis and how much  
13 contamination are you putting into, ultimately, the Ottawa  
14 River over a period of a year?

15                   **MR. LEVESQUE:** Stéphane Levesque for the  
16 record.

17                   We've never exceeded the 200 GBqs annually.  
18 The average typically is around 50 GBqs a year, so a  
19 quarter of that limit. We do release on a daily basis.  
20 We report it on the weekly, but it is released on a daily  
21 basis.

22                   And considering your question or comment  
23 regarding the river, we also intend on doing measurements  
24 in the river to make sure that there's no appreciable  
25 increase there either.

1                   If that answers your questions?

2                   **MEMBER GRAHAM:** Well, partly. You haven't  
3 done any sampling in the river, but you also have, I  
4 guess, the storm sewers which don't go through the  
5 treatment plant, which also drain the yards and all the  
6 drippings off the stacks and so on, which runs into storm  
7 sewers and so on.

8                   My question to CNSC staff is; the  
9 combination of storm sewer and sanitary sewer dumping and  
10 so on; has there been measurements to ensure that what is  
11 reaching the Ottawa River meets guidelines, meets Canadian  
12 guidelines?

13                   **MS. ERDMAN:** Ann Erdman, for the record.

14                   There's no storm sewers around the SRBT  
15 facility. SRBT can confirm that. But there's no storm  
16 sewers, so the only discharges that SRBT has through the  
17 sanitary sewer system. During inspections, that's  
18 information I would look at to ensure that they're meeting  
19 the criteria in their licence.

20                   **MEMBER GRAHAM:** So that comes back on Day  
21 Two, as Mr. Howden had mentioned.

22                   There are no storm sewer collector sewers  
23 in the yards or anything else? I'll ask SRBT -- this is  
24 confirmed? Where does that water go then when -- in a  
25 large area? I don't want to get into the details of other

1 questions, but where does that water go after a heavy rain  
2 of say, precipitation of 30 or 40, which often happens,  
3 millimetres of rain that we get sometimes?

4 **MR. LEVESQUE:** To my knowledge there isn't  
5 any storm sewers and the water would infiltrate the  
6 ground. If averages like that are common, what I was  
7 thinking of is, we did a theoretical calculation of the  
8 level that we were discharging to sewer. The worst case  
9 scenario would increase the concentration by .1 per cent  
10 of what it already is.

11 As part of the groundwater study, we had  
12 also done some measurements in the river and they haven't  
13 shown anything appreciable downstream from SRB  
14 Technologies compared to upstream.

15 **MEMBER GRAHAM:** I don't want to get into  
16 the groundwater studies right now, but those answer some  
17 of my questions.

18 Maybe some of the other Members might have  
19 something.

20 **THE CHAIRPERSON:** Questions on this sewer  
21 area particularly?

22 Dr. Barnes.

23 **MEMBER BARNES:** Can I just go back to  
24 staff? We heard high levels went into the sewer after the  
25 stack washing activities. CCRC reported that -- I think

1 the value was 119 million becquerels per litre. Could you  
2 advise us whether this value and that sort of event is  
3 still within regulatory limits?

4 **MS. ERDMAN:** Ann Erdman, for the record.

5 Yes, that value is still well within what  
6 they're allowed to put down the sewer system.

7 **MEMBER BARNES:** In the proposed sampling,  
8 at the sewage station and perhaps specifically sewage  
9 sludge, again, as with a lot of information that I think  
10 we've been given, we're not being given very much detail.  
11 To me, I just ask the question in all these cases, is it  
12 statistically significant in the way that these samples  
13 are being taken?

14 You know, we're not told how many samples  
15 and since so much variance is normally received by a  
16 sewage station, are these samples meaningful in the issues  
17 that are being addressed here? I would ask that perhaps  
18 to staff who are kind of monitoring this and if SRBT  
19 wishes to comment, which I think they do.

20 **(SHORT PAUSE)**

21 Madam Chair, perhaps SRBT would like to  
22 start off and then staff.

23 **THE CHAIRPERSON:** Yes.

24 **MR. LEVESQUE:** Yes, we intend on having the  
25 sewage treatment plant take one sample daily and then

1       measure the aggregate of that sample once a week, every  
2       week, until we get data that we're comfortable -- that  
3       it's fairly stable.

4               **MEMBER BARNES:** And that sample is taken  
5       from sewage sludge, at that point in the sewage system,  
6       treatment system?

7               **MR. LEVESQUE:** It would be taken at the  
8       outfall of the plant.

9               **MEMBER BARNES:** Okay.

10              Does staff have a comment then on the ---

11              **MR. HOWDEN:** Yes, Barclay Howden speaking.  
12       Dr. Thompson is going to comment on the sampling that SRB  
13       is doing and our approach to this.

14              **DR. THOMPSON:** Patsy Thompson, for the  
15       record.

16              Currently, the limit on release to sewer  
17       was designed to essentially deal with the contaminated  
18       wash water and other small liquid releases that occurred  
19       through the daily operations of SRB.

20              Because those SRB's releases to sewer have  
21       consistently been a small fraction or a fraction of the  
22       limit of 200 gigabecquerel, staff had not required  
23       monitoring of the sewage treatment plant in relation to  
24       the activities that are currently licensed.

25              I think the issue will need to be revisited



1 if the Commission accepts SRB's plan to deal with the  
2 groundwater contamination around the stack, which what  
3 they're proposing is essentially to capture the  
4 contaminant runoff and divert it to sewer rather than  
5 letting it infiltrate into the soil and contaminate  
6 groundwater.

7 Staff has not yet looked at what  
8 requirements, what additional requirements would need to  
9 be put in place in terms of monitoring, but the focus  
10 would also be on managing at the source, the release.

11 **THE CHAIRPERSON:** Dr. Dosman, do you have a  
12 question specifically on the sewer issue?

13 **MEMBER DOSMAN:** Yes, thank you, Madam  
14 Chair.

15 In the context of the potential release of  
16 water from the proposed roof at the base of the stack  
17 area, the documentation indicates that the volume of that  
18 effluent would be approximately 46 cubic metres per year,  
19 and the documentation would also indicate that the plan  
20 would be to release that effluent into the sewage system.

21 I would like to ask staff, given the  
22 concentration -- expected concentration of tritium in that  
23 affluent and its release into the sewage system, whether  
24 that release would be conducted within the permissible  
25 levels?

1                   **MS. ERDMAN:** Ann Erdman, for the record.  
2                   SRB has the responsibility to ensure that the release  
3                   limit placed on their licence is not exceeded, and CNSC  
4                   staff is currently looking, if we do recommend the  
5                   licence, at the release limits.

6                   **MEMBER DOSMAN:** Madam Chair, I'm not  
7                   certain if I've received the answer to my question.

8                   Is staff confident that the expected volume  
9                   and concentration of tritium from the collected water in  
10                  the tank would be within the limits that are prescribed?

11                  **MR. LEVESQUE:** Could I make a statement on  
12                  that sir?

13                  We are confident that it will be within the  
14                  limits of our existing licence because we've assumed the  
15                  concentration, the maximum stack drippings which is 2.3 MBq's  
16                  per litre, and we know that's only in the very restricted  
17                  area of the stack and we're collecting from a much greater  
18                  area. So we're actually anticipating that the concentration  
19                  of the water will be much less than 2.3.

20                  But when we did our calculation we assumed  
21                  all the water collected would be at this 2.3 MBq's per litre  
22                  and that also includes periods where we don't operate, where  
23                  the level would be a lot lower. We have also assumed a very  
24                  large rainfall, the biggest rainfall we've ever had in the  
25                  last 60 years over the course of the year. So we're

1 confident that, as I put I think on page 12 of the report,  
2 that the projected annual release for the diverted water  
3 would be 106 GBq's from that roof, and we think that it's the  
4 very maximum that it would be. So it would be within our  
5 limits, since we release approximately 50 now, plus that 106,  
6 would be about 156 of 200.

7 **MEMBER DOSMAN:** Thank you.

8 **MR. HOWDEN:** Barclay Howden speaking.

9 I would like to ask, Dr. Steve Mihok can  
10 comment on what SRB has said. But I would like to re-  
11 emphasise that the regulation would have to be done on  
12 limits; and then it would be up to SRB to meet those limits.  
13 That's very important. But he can comment on what Mr.  
14 Levesque has just said.

15 **DR. MIHOK:** For the record, Steve Mihok, an  
16 environmental risk assessment specialist with the CNSC.

17 Mr. Levesque has presented the information  
18 correctly and again, it is something that we've looked at  
19 carefully.

20 The consequences, sort of the bounding  
21 conditions that might occur in terms of the concentrations  
22 dripping off of the stack and coming down in rainfall have  
23 been measured fairly extensively over the last few months.  
24 These sort of bounding conditions worst case scenarios are  
25 reasonable in terms of our comfort zone for what the

1 consequences might be if that amount of material went into  
2 the sewer at typical rainfall and typical dilution rates and  
3 operation of the sewage treatment plant.

4 So he's presented the information and we  
5 concur with what he has to say.

6 **MEMBER DOSMAN:** Thank you.

7 **THE CHAIRPERSON:** My question with regards  
8 to sewers is to CNSC staff. When the proposal comes forward  
9 from a licensee to deal with issues such as this, are  
10 licensees required to give you alternatives? And if yes,  
11 what were the alternatives that were examined and if no, why  
12 not?

13 **(SHORT PAUSE)**

14 **DR. THOMPSON:** Patsy Thompson, for the  
15 record.

16 Essentially, CNSC staff identifies  
17 requirements that the licensee should meet, based on the  
18 *Nuclear Safety and Control Act* and the regulations.

19 In this case, SRBT put forward one proposal  
20 to deal with the contaminated water -- the water that was  
21 potentially -- that was contaminating the groundwater.  
22 Staff reviewed the SRB proposal to see whether or not it  
23 meant -- it met the regulatory requirements and no  
24 alternatives were presented but we did assess the proposal  
25 by SRB to make sure that it met the requirements of staff

1 based on the Act and the Regulations.

2 **THE CHAIRPERSON:** Then I'll pose my  
3 question to SRBT.

4 Understanding that the community is  
5 concerned about releases to their sewer system, were other  
6 proposals looked at in this area?

7 **MR. LEVESQUE:** Stéphane Levesque for the  
8 record. Thank you for the question.

9 On page 15 of our implementation plan,  
10 we've looked at two different alternatives. We looked at  
11 one, disposal of the water, if we could basically collect  
12 the water and have another CNSC licensee take that water  
13 and dispose of it through their liquid effluent, and we  
14 weren't able to find a licensee that would either  
15 entertain the idea or who was licensed to basically do  
16 that, to take waste from a third party.

17 Another proposal that we looked at, we did  
18 some research to see is it possible to basically strip the  
19 tritium out of the water and we've included in Appendix A  
20 of our report basically a couple of pages from a third  
21 party that's looked at removing the tritium, and it's not  
22 really effective for relatively low concentrations that  
23 are in this water compared to other known processes that  
24 strip water out of the tritium. So there was no effective  
25 way of doing that either. So those are the two methods

1 that we've looked at.

2 **THE CHAIRPERSON:** So my question to staff  
3 is then you haven't evaluated this information, or have  
4 you evaluated the information that SRBT put forward with  
5 regards to their exploration of alternatives?

6 **MR. RABSKI:** Henry Rabski for the record.

7 No, we only evaluated the one proposal that  
8 SRB put on the table, which was the collection immediately  
9 around the stack.

10 **THE CHAIRPERSON:** What would be the  
11 timeframe for the staff to evaluate the alternatives?

12 **MR. RABSKI:** Henry Rabski for the record.

13 That would be difficult to project based on  
14 the very preliminary information that was provided in  
15 SRB's report. They only looked at the concepts. They  
16 didn't provide sufficient detail for evaluation. So I  
17 would be unable to answer that right now.

18 **THE CHAIRPERSON:** One of the issues that  
19 comes up about releasing into the sewers and then into the  
20 river and we -- since we do other licences on the river,  
21 we've spent some time on this as the intervenor has, you  
22 know, on the whole issue of the Ottawa River per se, and  
23 my questions is for staff. When one looks at the  
24 authorities including the CNSC and Ontario Environment and  
25 others that monitor water quality, what is the holistic, I

1       suppose, approach to the Ottawa River and its tributaries  
2       that would give some assurances as to the monitoring of  
3       water quality, how is that done, who does that and what  
4       kind of information is available to the public and  
5       interested parties with regards to, for in this case, the  
6       Pembroke area and its continuity?

7                   **DR. THOMPSON:** Patsy Thompson for the  
8       record.

9                   In terms of the Ottawa River and the  
10       discharges that the CNSC authorizes from essentially the  
11       two licensees that hold licences from the CSNC and are  
12       authorized to discharge tritium to the Ottawa River, staff  
13       assessed the significance in terms of potential  
14       environmental impacts on those systems and the public from  
15       releases from both licensees and we need to assure  
16       ourselves that by having several licensees discharging to  
17       the same water body that we're not creating cumulative  
18       impacts that could, together, defeat the purpose  
19       essentially of individual -- regulating individual  
20       facilities.

21                   The monitoring information that is  
22       currently available for the Ottawa River from the Chalk  
23       River site, which is upstream of Pembroke -- to Pembroke,  
24       there is monitoring conducted by AECL on the Ottawa River  
25       as part of their licence requirements. And I recall that

1 the Municipality of Pembroke also measures water quality  
2 including radionuclides at the intake of their drinking  
3 water plants but I don't right today recall the details of  
4 the frequency and what radionuclides are monitored. But  
5 that information is available and staff could bring it  
6 back for Day Two.

7 **THE CHAIRPERSON:** I think what I -- I'd  
8 like to have a sense for Day Two of exactly what is the  
9 monitoring per se. You know, I'm almost quite sure that  
10 the Ontario Ministry of Environment also does monitoring  
11 on the river and on the river system. So you talk about  
12 sort of the AECL down to Pembroke, issues in Pembroke  
13 monitoring but I think what we're talking about here is  
14 the releases broadly.

15 And what would -- I mean, who would be  
16 responsible then for the alert system if this -- any part  
17 of this, not this licensee or that licensee but the whole  
18 water system itself changed in character and these issues?  
19 I think that it's reasonable to assume that citizens,  
20 including people in this room who live in Ottawa, are very  
21 interested in the quality of water. So you know, but not  
22 confined to any particular city or municipality, who pays  
23 attention to this overall? Maybe some comments now but if  
24 we don't have it, I think we really need to have a very  
25 clear layman's definition of how this is monitored,



1 period, for Day Two.

2 **MR. HOWDEN:** Barclay Howden speaking.

3 We'll bring back the information for Day  
4 Two and, if possible, perhaps bring the -- some of the  
5 responsible agencies as well.

6 **THE CHAIRPERSON:** Thank you.

7 You've all been sitting here very patiently  
8 for a couple of hours, so we're going to take a 10-minute  
9 break and then we'll be back for continuation with Dr.  
10 McDill's questions.

11 --- Upon recessing at 10:40 a.m.

12 --- Upon resuming at 10:53 a.m.

13 **THE CHAIRPERSON:** Ladies and gentlemen, if  
14 you could take your seats, please. We're ready to  
15 proceed.

16 We'll return to Dr. McDill to continue  
17 Round One questioning.

18 **MEMBER MCDILL:** Thank you.

19 My next question relates to the  
20 intervenor's concern with respect to, shall we say,  
21 nursing infants creeping on the grass. So I wonder if I  
22 could ask staff and then SRBT, if it wishes, and the  
23 intervenor to comment on the dosages that would be  
24 experienced by that particular ---

25 **MR. HOWDEN:** Thank you. Barclay Howden

1 speaking.

2 Dr. Steve Mihok will reply to your  
3 question.

4 **DR. MIHOK:** Steve Mihok for the record.

5 Yes, Dr. Hendrickson is correct in that  
6 there is a difference in terms of concentrations of  
7 tritium at ground level and at one or two or three metres  
8 above ground level, but the important point to remember  
9 when looking at these sorts of data is what actually  
10 happens in terms of the numbers involved. So when you're  
11 looking at SRBT's emissions, about 94.5 per cent of the  
12 HTO that is formed and present in the environment for  
13 let's say 2005 data is actually the HTO that is emitted.  
14 It's only the other 5.5 per cent that we expect to be  
15 converted into HTO, which is the biologically relevant and  
16 active compound.

17 And so when we look at the consequences of  
18 how HT is behaving in terms of soil oxidation close to the  
19 ground, there is about a 42 per cent difference between  
20 the conversion or the amount that will be present at 20  
21 centimetres above the ground level where children would be  
22 playing and breathing and so on and at, let's say, 1.5  
23 metres, which is where we actually have some experimental  
24 information from major work done at the Chalk River  
25 Laboratories.

1                   So essentially when you take 94.5 per cent  
2                   and increase the other 5.5 per cent by a factor of 1.42  
3                   plus 42 per cent for this difference in height, then you  
4                   actually only have a 2.3 per cent difference in the dose  
5                   that would result from that particular situation at ground  
6                   level. And so the difference is real but it is actually a  
7                   very small difference.

8                   **MEMBER McDILL:** Thank you.

9                   SRBT.

10                  **MR. LEVESQUE:** Stéphane Levesque, for the  
11                  record.

12                  I'll pass the question to one of our  
13                  consultants, Dr. Osborne.

14                  **DR. OSBORNE:** Richard Osborne, for the  
15                  record.

16                  I can't add to what we have just heard from  
17                  the staff member. I think he was -- I would agree with  
18                  his analysis that that is indeed the situation.

19                  Thank you.

20                  **MEMBER McDILL:** Thank you.

21                  **MR. HENDRICKSON:** Thank you, Chair.

22                  Ole Hendrickson, for the record.

23                  I thank Dr. Mihok for providing some of the  
24                  studies that looked at this issue that were done at AECL.

25                  I think further examination is warranted to

1 see if those studies could truly be used in the case of  
2 Pembroke. The studies were done of much lower levels of  
3 HT than we're seeing in Pembroke and there is a definite  
4 possibility that the oxidation rate of 5.5 per cent from  
5 HT to HTO that Dr. Mihok quotes might not -- is not  
6 conservative and we might see larger oxidation rates.

7 There's also issues about the weather  
8 conditions when the AECL studies that he refers to were  
9 done. So we're not confident that we can accept really  
10 hard and fast numbers such as the 42 per cent difference  
11 between ground level and 1.5 metres or the 2.3 per cent  
12 difference in dose that he quoted. We feel that this is a  
13 fairly serious matter and there would be ways to get at it  
14 through additional study, but as I said in the  
15 intervention, we're not looking forward to being guinea  
16 pigs for these matters, but there are very significant  
17 uncertainties related to them.

18 **THE CHAIRPERSON:** I think it would be  
19 reasonable then to ask the staff to comment on Dr.  
20 Hendrickson's proposal or comments.

21 **MR. HOWDEN:** Barclay Howden speaking. I'm  
22 going to ask Dr. Mihok to reply to that.

23 **DR. MIHOK:** Steve Mihok, for the record.

24 I don't want to really get into a  
25 discussion between two doctors here, but basically we are

1 very much into the science on this topic and unfortunately  
2 we're limited by the science. The absolute best science  
3 that we have is this experiment that was done in Chalk  
4 River. If I have the year right, I think it was 1994. It  
5 was an international effort. Some of the best people  
6 around who know tritium and know its behaviour well  
7 designed the experiment. The monitoring was excellent,  
8 exquisite, in terms of how they looked at the behaviour of  
9 HT and how it gets converted in soils and at different  
10 distances from a release point.

11 So the science is all that we can really  
12 rely on for this. It's very unusual, actually, to have  
13 science as good as that for a practical situation. We're  
14 talking about the difference between Chalk River and  
15 Pembroke, a relatively similar environment.

16 The only thing that we can fall back on  
17 when we debate uncertainty is essentially the other  
18 ancillary scientific information that we have. We have  
19 probably the only truly relevant information about long-  
20 term processes and accumulation from the fallout situation  
21 in the past, and there we do know that when tritium is in  
22 the environment it does not seem to reside much longer  
23 than about perhaps 3.5 or four years, as organically-bound  
24 tritium in soils, and that would be the main concern about  
25 this oxidation of HT by soil bacteria resulting in some

1 sort of accumulation in the soil and then sort of an  
2 unmonitored source building up through a long period of  
3 time, over 15 years, and gassing off, if that's the best  
4 analogy.

5 So there is not an awful lot that we can  
6 do, but we do have almost like a natural experiment in  
7 what has happened at SRBT, a major source of tritium over  
8 a long period of time and how it behaves.

9 All of the information that we have to date  
10 so far from air concentrations, water concentrations,  
11 whatever information has been collected from whatever  
12 source doesn't tell us that the emission of these very  
13 large quantities of HT has produced any unusual process.  
14 Essentially, there is no red flag to date so far in  
15 anything that I am aware of except for the issue that we  
16 are going to debate probably for most of today, which is  
17 the presence of tritium in groundwater very close to the  
18 facility at high levels.

19 **THE CHAIRPERSON:** Mr. Graham, your  
20 questions. Anything you wish to ask?

21 **MEMBER GRAHAM:** Okay. Thank you.

22 I want to ask a couple of questions to SRBT  
23 with regard to making public information known. There was  
24 a segment there you touched on this morning with regard to  
25 website and getting out to the public and making the

1 information known.

2 At the present time, are all of the  
3 sampling and all of the results that you're doing, whether  
4 it be at the sewage treatment plant, which hasn't started  
5 yet, I don't believe, has it -- has the sewage treatment  
6 plant testing started yet?

7 **MR. LEVESQUE:** Just as of last week.

8 **MEMBER GRAHAM:** Will all of that  
9 information, all of the testing information that you have,  
10 will that be made available to the public and the  
11 Concerned Citizens of Renfrew and the general public in  
12 Pembroke and so on?

13 **MR. LEVESQUE:** Yes, it will be and we  
14 intend to put it -- we've already been supplying a lot of  
15 that information to those who ask, like the Concerned  
16 Citizens, but we also intend to have it available at the  
17 City on our website and anyone who presents themselves at  
18 the facility who would like to have a copy.

19 **MEMBER GRAHAM:** So you can assure us today  
20 that all testing information, whether it's good, bad or  
21 indifferent, will be made available?

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

24 Yes, it would be.

25 **MEMBER GRAHAM:** The second question is you

1 had an open house. I believe I read in some of the  
2 documentation you had an open house. How was the  
3 attendance there? Is there general concern of the  
4 citizens or the people of Pembroke about your operation  
5 and about what has happened over the last six months,  
6 year, two years with regard to the operation? Is there  
7 more concern now than what there was, say, several years  
8 ago?

9 **MR. LEVESQUE:** We find that the concern has  
10 been limited to the same group of individuals, which is  
11 much less than 15 to 20 people over the course of the  
12 years. We have had a lot of people show us support, ask  
13 us questions, but we haven't had any people that showed  
14 any increased concern regarding our operations.

15 **MEMBER GRAHAM:** With regard to the -- I'm  
16 sorry, I missed the Concerned Citizens' comment.

17 **DR. HENDRICKSON:** Thank you.

18 Ole Hendrickson, for the record.

19 We would have a somewhat different view  
20 about the level of public concern and we've certainly  
21 noted an increase in recent weeks, in particular  
22 associated with the proposal to discharge contaminated  
23 water to the river.

24 **THE CHAIRPERSON:** Mr. Graham.

25 **MEMBER GRAHAM:** My other question of SRBT,



1 have you seen an increase in hits to your website and so  
2 on in recent weeks with regard to people looking for more  
3 information?

4 **MR. LEVESQUE:** Stéphane Levesque, for the  
5 record.

6 No.

7 **MEMBER GRAHAM:** I have other questions, but  
8 along that line. I will go to someone else now, Madam  
9 Chair.

10 **THE CHAIRPERSON:** Thank you.

11 Dr. Barnes.

12 **MEMBER BARNES:** I wonder if I could just  
13 start with one of the plots that you show. I'll just make  
14 a comment that it would be helpful, Madam Chair, if the  
15 submissions from SRBT had a date on them, particularly  
16 since you've now appeared before us several times and  
17 sometimes other documents are essentially as tabs in this  
18 document. So none of these are dated and so it makes it  
19 very difficult to reference these easily without a long  
20 title and seeing if opinions or data change from one  
21 report to another.

22 So to staff, I think if they happen not to  
23 have a date on it, it would be useful to have a date  
24 stamp, date received even, but I think the responsibility  
25 is for SRBT. So that's a minor point.

1                   Excuse me a second while I get the -- on  
2 H16.1B, for example, which is page 8 of your first  
3 submission in our binders, which is your latest  
4 submission, you give the figure "1" which is the weekly HT  
5 and HTO releases, okay, over a period of 31 weeks. The  
6 caption reads that:

7                   "This shows the trend in weekly total  
8 activity released in 2006 and that it  
9 has decreased gradually from the start  
10 of the year to our last full year of  
11 operation for both those components."

12                   Is it possible to get that reproduced with  
13 actual data points on it, or could I ask how that is  
14 generated, that particular straight line curve?

15                   **MR. LEVESQUE:** Stéphane Levesque for the  
16 record.

17                   And yes, thank you for your comment. The  
18 next document will have the data on them. I apologize for  
19 the confusion it's created.

20                   The data was created using a trend line  
21 because the numbers did fluctuate quite considerably but  
22 if you look in the last few months the numbers have  
23 stabilized. But, yes, we can generate that for Day Two of  
24 the hearing if you like.

25                   **MEMBER BARNES:** I think there are -- I'll

1       come back to this, but the point I'm trying to get at here  
2       in my next two or three questions are; I think it's  
3       important through this process both for SRBT and the  
4       public, that we establish the peaks and valleys in what  
5       these numbers are and what they really mean. I think  
6       we're being informed that many of the values we are  
7       looking at, even some in extreme values are perhaps of  
8       minor impact on the environment. Cumulatively that might  
9       not -- we might want to challenge that. But certainly,  
10      many of the releases are well within regulatory limits.

11               The point you are making in this Figure 1  
12      is that with your variety of efforts, which staff has  
13      certainly acknowledged in trying to respond, I think, to a  
14      lot of the comments or criticisms that the Commission has  
15      made to you, you've made some substantial progresses, a  
16      company trying to address these and have lowered some of  
17      the levels of emissions. But what's clear, I think, in  
18      some of the comments but less so in the data is how  
19      variable the releases are and it becomes important to know  
20      what we are actually measuring here.

21               So the message, I think, in this Figure 1,  
22      and it's repeated in a number of the other reports, is  
23      that I think you're providing us with a trend to show that  
24      overall, over a period of time, your efforts have reduced  
25      these values but it's not telling us the variation, all

1 right?

2 So my next comment is I'd like SRBT to tell  
3 us -- I know you have described this in the document but  
4 just -- you've told us that on your average week you are  
5 essentially processing tritium such that this would be --  
6 being emitted from the stacks about 25 per cent of the  
7 time, correct? And looking ahead over the period that you  
8 are asking for, the next three years, would that more or  
9 less be the same, about 25 per cent of the time; that  
10 gives you enough tritium to do what you need to do as a  
11 company for the products you are making.

12 **MR. LEVESQUE:** Stéphane Levesque for the  
13 record.

14 Yes, approximately, that would be correct.

15 **MEMBER BARNES:** Okay. So in your average  
16 week, or take in a month or whatever, how do you decide  
17 which per cent of that week, which 25 per cent of the week  
18 or the month, let's say a month, you actually use it? Is  
19 it a regular scheduled 25 per cent or is it variable?

20 **MR. LEVESQUE:** Stéphane Levesque for the  
21 record.

22 Up to the issuance of the Order and their  
23 requirement for not operating in precipitation before  
24 that, it was regular. It was 40 hours a week, Monday to  
25 Friday, if that's what you're asking.

1                   **MEMBER BARNES:** So is it a certain amount  
2 per day?

3                   **MR. LEVESQUE:** Yes.

4                   **MEMBER BARNES:** And on each day is it a  
5 certain time each day that you're emitting this material  
6 from the stack or how does it work?

7                   **MR. LEVESQUE:** It's throughout the day  
8 every -- I guess roughly every 15 minutes, roughly. Every  
9 time a process gets completed.

10                  **MEMBER BARNES:** Okay. So the points that -  
11 - on a number of the other measurements, the data that you  
12 have, you're giving us, for example, weekly and monthly  
13 data, all right, you give us some data which are based on  
14 weekly stack exhaust measurements. So what do they  
15 actually represent, those? They are the 25 per cent peaks  
16 in addition to 75 per cent when there is very, very few  
17 emissions; is that right, the values that you are giving  
18 is on those stack, so-called stack emissions?

19                  **MR. LEVESQUE:** I'm sorry. I don't think I  
20 understand the question. I'm sorry.

21                  **MEMBER BARNES:** When you give us a value  
22 for the stack emission is it just for the period of actual  
23 emission?

24                  **MR. LEVESQUE:** It's for the entire week.

25                  **MEMBER BARNES:** Right.

1                   **MR. LEVESQUE:** Outside of that 25 per cent,  
2                   inside of the 25 per cent the whole week. It's  
3                   cumulative.

4                   **MEMBER BARNES:** Right, but the 25 week  
5                   which includes the peaks of maximum emission and 75 per  
6                   cent when there is essentially very little emission; is  
7                   that correct?

8                   **MR. LEVESQUE:** Yes, yes.

9                   **MEMBER BARNES:** But you have methods of  
10                  real time recording. Is that correct?

11                  **MR. LEVESQUE:** We have a chart recorder as  
12                  well that we use, that's used for real time monitoring,  
13                  but we don't use that for reporting emissions.

14                  **MEMBER BARNES:** What does it record then,  
15                  and what is the time within real time that it actually  
16                  records? What units of time is it actually measuring,  
17                  instant, virtually?

18                  **MR. MacDOUGALL:** Shane MacDougall for the  
19                  record.

20                  The real time chart recorder is monitoring  
21                  in one axis, the timeframe and in the other axis it's  
22                  measuring the quantity of tritium as being reported by a  
23                  tritium and air monitor. So we do see peaks during  
24                  production hours whereby when production is ceased the  
25                  chart is essentially baseline. So essentially, from seven

1 o'clock in the morning till about four o'clock in the  
2 afternoon or seven o'clock in the evening, you will see  
3 peaks at each time a part of production occurs, very brief  
4 peaks.

5 **MEMBER BARNES:** Sorry. And during the time  
6 that you are processing the tritium over the 25 per cent,  
7 and if you were to take, let's say, over the year, is  
8 there much variance if we were just to take the -- if you  
9 were to analyze that during the 25 per cent and not during  
10 the 75 per cent is there much variance in the amount of  
11 tritium released from day-to-day during the 25 per cent of  
12 the time that you are actually processing this?

13 **MR. LEVESQUE:** Stéphane Levesque for the  
14 record.

15 Yes, there could be, yes.

16 **MEMBER BARNES:** And to what -- how much a  
17 variance occurs there?

18 **MR. LEVESQUE:** I could provide you more  
19 detail for Day Two of the hearing, but there is some  
20 variance. I don't know the exact range that there is, but  
21 there is some variance, yes.

22 **MEMBER BARNES:** I mean, part of the trouble  
23 I find in trying to analyze this, and I don't think all  
24 the current -- the new set of information really helps and  
25 we are promised certain updates by Day Two but a lot of

1        what you're going to provide as a date of December 31<sup>st</sup>  
2        and then April 30<sup>th</sup>, so we're not going to see some of  
3        this new information by Day Two, as there still seems to  
4        be a missing component of tritium generation here which  
5        staff produced. That was one of the reasons why you, I  
6        think, were -- had restrictions put on you by the DO  
7        order, is that there were some anomalous values which  
8        could not be explained. Your explanation is that  
9        virtually all of the tritium is released through the stack  
10       and Dr. Thompson's point before is on the scale of  
11       contamination there has to be another source and, I think,  
12       even the documents in the groundwater study are still  
13       trying to wrestle with that, to see if there are other  
14       sources.

15                    I think in your -- one of these recent  
16       documents it was also pointed out that even during times  
17       when you were shutdown tritium was still being picked up,  
18       albeit at fairly small levels and therefore there clearly  
19       were other sources which challenged your initial comment  
20       that virtually all of them were coming out of the stack.

21                    **MR. LEVESQUE:** Sorry, it's Stéphane  
22       Levesque for the record.

23                    It's important to understand that also in  
24       periods where we are not operating, that there is a number  
25       of emissions coming out of our stacks that are -- which we



1 consider the source that are ongoing, storage of waste;  
2 storage of leaking tubes, nonconforming product; storage  
3 of used pumps, and some releases from the surfaces of  
4 materials which would gradually go down over time after,  
5 not as we've seen in those weeks. But we considered that  
6 those were all part of stack emission, a constituent of  
7 stack emission and not by themselves, individual sources.

8 But if someone's definition is that what  
9 makes up stack emissions is in itself separate sources,  
10 then I would agree with them thinking that but we didn't  
11 view that as separate sources. We viewed that as all that  
12 relating to stack emissions.

13 **MEMBER BARNES:** So if I could ask staff,  
14 because I'm sure that we cannot and should not receive  
15 real-time data, which would make binders very thick, but  
16 you have analyzed the output or the amount of material  
17 coming out of the stacks relative to the real-time  
18 recorders such that you're confident in the way that  
19 you've done both site visits and looked at the evidence  
20 produced through the chart recorders that there aren't  
21 times when truly excessive amounts of tritium are being  
22 released inadvertently or deliberately during some of  
23 these processes that in turn might just essentially get  
24 averaged out to suggest that there's not a cause for  
25 concern.

1                   So in other words, in the nature of the  
2                   processing, are there very significant peaks here that  
3                   could be lowered by the techniques of processing here, as  
4                   opposed to just receiving data which has been time-  
5                   averaged here? Do you have enough control on your  
6                   oversight of what is happening at the plant?

7                   **MR. LEVESQUE:** Excuse me, could I make a  
8                   small comment please?

9                   Stéphane Levesque, for the record.

10                  I just want to make sure that some of us  
11                  are thinking maybe there's a misunderstanding. Everything  
12                  coming out of our stack, whether it's an ongoing source,  
13                  during or not during processing, whether the source  
14                  releases a higher concentration or lower, all those are  
15                  calculated, cumulated and monitored by our stack releases.

16                  **MEMBER BARNES:** Nevertheless, there are  
17                  times and locations where you appear to have an excessive  
18                  amount of contamination, and I'm trying to address those  
19                  specific extreme levels of contamination. One might be  
20                  the nature of the stack and we've seen these  
21                  contaminations, the base of the stack, eventually you have  
22                  to look at where the source might be. So how does that  
23                  accumulate, let's say, on the stack, to accumulate at the  
24                  bottom of the stack?

25                  The other is it's all coming out of the

1 stack at different times, partly through the processing  
2 and, as you've indicated, a very minor amount through  
3 other activities within the plant itself.

4 So I'm trying to find out whether overall  
5 in the processing there are actually times when excessive  
6 amounts of tritium are being generated through the  
7 processing and does staff have enough monitoring control  
8 and review of the real-time data to see whether there are  
9 excessive peaks or whether the peaks, the 15-minute spikes  
10 and so on, are pretty well constant over a year.

11 **THE CHAIRPERSON:** Mr. Levesque and then the  
12 staff, please.

13 **MR. LEVESQUE:** Stéphane Levesque, for the  
14 record again.

15 I think I understand the question and  
16 again, in addition to the stack monitor we do have the  
17 chart recorder that does monitor intermittent releases and  
18 as part of our licence we do have that condition; that if  
19 it exceeds a certain trigger level for a period of time,  
20 that we stop processing to investigate, that we show a  
21 potential loss of control.

22 So if there was anything that was deemed  
23 excessive in our mind, as part of our licence, that's the  
24 trigger level that we've set to investigate if there's a  
25 potential loss of control and we haven't had any of those

1 in the past year or anywhere close to that.

2 I don't know if that answers your question,  
3 but the chart recorder would really be the tool that we  
4 would use to determine that and that's part of our  
5 licence.

6 **MEMBER BARNES:** And when did you introduce  
7 the chart recorder?

8 **MR. LEVESQUE:** We've had the chart recorder  
9 for several years, but the licence condition to formally  
10 report has been done, I believe, it was in July.

11 **MEMBER BARNES:** The staff ---

12 **THE CHAIRPERSON:** No. We're going to the  
13 staff and we're going to keep control of this place, okay.  
14 To staff.

15 **MR. HOWDEN:** Thank you. Barclay Howden  
16 speaking.

17 We're going to give you a two-part answer.  
18 The first part is our overall approach to the emissions  
19 and monitoring and Dr. Patsy Thompson is going to speak to  
20 that, and then I'm going to ask Ann Erdman to speak to our  
21 compliance efforts that we do when we go in and we look to  
22 see if peaks have occurred that trigger action levels and  
23 what is done at that point.

24 So I'll ask Dr. Thompson to start.

25 **DR. THOMPSON:** Patsy Thompson, for the

1 record.

2                   Essentially the emission monitoring  
3 requirements on SRBT's licence are to provide essentially  
4 information on the total annual release of tritium from  
5 the facility. The verification is done on a weekly basis.  
6 Essentially, the total annual release was divided by 52  
7 weeks so that there is a weekly control on emissions.

8                   So the monitoring program, the bubblers and  
9 the stack monitoring program was designed essentially to  
10 provide assurance that annual emission limits are not  
11 being exceeded.

12                   The information available from SRBT's  
13 weekly emission monitoring indicates quite a variability  
14 in rates -- in emissions on a weekly basis. So it does  
15 vary quite a bit, but the monitoring program was not  
16 established to obtain -- I think your question was more in  
17 relation to emission rate as certain activities are being  
18 undertaken within the plant.

19                   The program is essentially designed to  
20 provide assurance for emission limits and the operation  
21 within the plant in terms of the licensee using the real-  
22 time information to control process is something that Ann  
23 Erdman will speak to you about.

24                   **MS. ERDMAN:** Thank you. Ann Erdman, for  
25 the record.

1                   On the licences, as Dr. Thompson said, we  
2                   have the release limits and that's what, when I do an  
3                   inspection, I would verify compliance against. I look at  
4                   SRBT's logs, which they keep, of all work that's being  
5                   done. That's a requirement on their licence. And we also  
6                   look at what they also record on a weekly basis for their  
7                   emissions, as Dr. Thompson pointed out, they're required  
8                   to keep.

9                   In terms of the real-time monitor, that was  
10                  actually put in place by SRBT after a CNSC audit. I  
11                  believe that was 2002 that that audit was conducted at  
12                  their facility, at which time CNSC staff identified the  
13                  need to have a real-time monitor in place and SRBT then  
14                  undertook to obtain a real-time monitor.

15                 The use of that real time monitor is to  
16                 identify situations where something they can -- on a daily  
17                 basis, on an hourly basis, on a very short-term basis,  
18                 they can then identify what is happening at that time,  
19                 because the bubbler system which they use for their weekly  
20                 emissions, that's only monitored once a week. So it's  
21                 very important from CNSC staff's point to have something  
22                 available in the plant so that they can monitor it on  
23                 basically an instantaneous time.

24                 And so SRBT did bring that in. We do look  
25                 at it when we do go and do our inspection and we look at

1       how it's calibrated and we've looked at that over this  
2       last licensing term.

3                     I hope that answers your question.

4                     **MEMBER BARNES:** Thanks.

5                     A few more, Madam Chair.

6                     It's just a comment and maybe it's too  
7       minor, but again, Mr. Levesque, in your initial document,  
8       page 6, where again you're addressing overall tritium  
9       mitigation technology, so I'm kind of reading this to see  
10      to what extent the system -- the tritium contamination can  
11      be mitigated and what you're doing about it and I  
12      recognize that you've put in place some implementation  
13      which of course is not necessarily constant but this is  
14      just a comment as someone who is reading this, trying to  
15      wrestle with some of these issues, and I'll give you three  
16      examples here.

17                    In the second paragraph you say a number of  
18      initiatives had been introduced to reduce the emissions of  
19      the facility which have resulted in a 43 per cent  
20      reduction of emissions and a 25 per cent reduction in  
21      staff dose. That doesn't say from when. Would you have  
22      an answer from when? You know, per cent reduction has to  
23      be over a specific period of time, right, from A to B.

24                    **MR. LEVESQUE:** At the time of writing this  
25      report it was the average for that year compared to the

1 average the year before. But for example, like I said in  
2 my opening statement, if you were to measure that today,  
3 because we've had several more weeks since then it's now  
4 62 per cent. So it's the average for the year.

5 **MEMBER BARNES:** Okay. As you know, today  
6 we have several levels of documents. So when you're  
7 trying to compare one document with another, if in another  
8 year we're looking at your document it really doesn't help  
9 us in this process. Likewise, under "Tritium Oxide", the  
10 last sentence says:

11 "The TOT did not collect an  
12 appreciable amount of tritium compared  
13 to other methods used to reduce  
14 emissions."

15 It doesn't really give us any factual data there.

16 Under "Inner Gas Purging":

17 "The emission data collected since the  
18 implementation of the system..."

19 -- which I'm not sure I'm told when that is --

20 "...has shown that this initiative has  
21 reduced the amount of tritium oxide  
22 emissions."

23 The same as for the last two lines at this  
24 page:

25 "The emission data collected since



1                   this implementation has shown that  
2                   this initiative has reduced the amount  
3                   of total tritium emission."

4           It doesn't tell me how much or as a percent.

5                   So in a sense these statements are so  
6           general that they're actually not helpful when we're  
7           trying to address the issues that we are. So that's again  
8           a comment.

9                   If I can turn to, again, the issue of  
10          contamination of tritium and go to the staff document, CMD  
11          06-H16.C. On page 12, there's the average atmospheric  
12          concentration of tritium as Table 2 at the top of that  
13          page and I address the question to SRBT as opposed to  
14          staff because essentially it's SRB data that staff is  
15          portraying here.

16                   So it's giving four specific stations,  
17          stations 1, 2, 4 and 13, and data is reported in years  
18          2003, '04, '05 and '06 but a significant, obviously,  
19          variance of data from station to station and year to year,  
20          often by a factor of two. Could you interpret why there  
21          should be such wide variance of data from site to site,  
22          year to year?

23                   **MR. LEVESQUE:** Stéphane Levesque, for the  
24          record.

25                   First they would -- it's really dependent

1 on the atmospheric conditions, on wind and on the weather  
2 that you have because these are all located at different  
3 locations. If the prevailing wind was more in one area  
4 one year during periods where we've had higher releases,  
5 then they would raise the average for those stations. One  
6 must really look at the one-year-old data for all the  
7 stations and the position of the stations to really make a  
8 better conclusion, but it's basically -- that's  
9 essentially why the great variance at the same station.

10 **MEMBER BARNES:** Yes, I had difficulty. You  
11 did give the wind rose data and essentially sites 1, 2 and  
12 4 that you're reporting here are along the kind of  
13 northwest-southeast line, which is the line of maximum  
14 wind activity, as I read that wind rose, and then 13 is  
15 sort of off to the east and we don't have something to the  
16 southwest if I drew a northeast-southwest line so we had  
17 two axis's like this. There's not very much to compare  
18 something in the southwest which one presume, would in  
19 general is least contaminated.

20 But I still found it curious because,  
21 still, these stations are within a fairly small footprint  
22 of each other and I found it difficult to think that just  
23 the variance in wind -- if it was variance of wind from  
24 year to year, I would have thought they would have all  
25 experienced more or less the same degree of variance

1 compared to the range of figures that don't really  
2 correlate from station to station very much and year to  
3 year.

4 So I'll ask the same question to staff  
5 after you speak, Mr. Levesque.

6 **MR. LEVESQUE:** Stéphane Levesque, for the  
7 record.

8 In looking at wind data, we can see that  
9 there's definitely a switch of wind at one certain period  
10 of the year where it changes from one side to the other.  
11 Now, if your releases happen to be higher before it  
12 changed side, you can make sense of the data by looking at  
13 the previous year, if the releases for that year, if it  
14 was after the changing wind.

15 It's partly why we redesigned the EMP to  
16 put in the 41 passive air samplers, where we now have at  
17 equal distances in each quadrant, north, south, east,  
18 west, monitors to be able to give us better data so we can  
19 do some better comparison. And we have a third party  
20 doing it so we'll be able to compare the data that they  
21 gather, because it's a little hard to compare, again, the  
22 data that we've gathered over the years compared to what  
23 they've been measuring.

24 **MEMBER BARNES:** Does have staff have any  
25 comment? Do you see any atmospheric patterns here

1 relative to tritium dispersal?

2 **MR. HOWDEN:** Barclay Howden speaking. I'm  
3 going to ask Dr. Steve Mihok to comment.

4 **DR. MIHOK:** Steve Mihok, for the record.  
5 Yes, these data have been under literally  
6 intense scrutiny for several years and have been compared  
7 and contrasted with the independent monitoring that was  
8 done by CNSC staff several years ago to truly understand  
9 the dynamics and all of the scrutiny led to  
10 recommendations to improve the monitoring program, to  
11 improve the monitoring of releases as well, so that we  
12 could have absolute confidence -- nearly absolute  
13 confidence in the relationship between releases and the  
14 actual numbers being measured in the air. And that has  
15 only sort of come to fruition as of the beginning of this  
16 year. So we're sitting now on about six months of data.

17 Unfortunately, when you look at other  
18 datasets, you'll find that six months of data isn't  
19 necessarily all that informative. Everyone who monitors  
20 tritium in air being released from a point source for  
21 whatever purpose does see these large variations by a  
22 factor of two or three or five. Again, we try not to read  
23 too much into small datasets. We try to use five-year  
24 weather records, perhaps a one-year average for air  
25 concentration before we read too much into the data.

1                   Where we're at as of today is fairly  
2 straightforward, though. We have six months of data. It  
3 does make quite a bit of sense. The examples given in the  
4 CMD are really just to inform you of the general pattern  
5 close to the facility and the very important number that  
6 has been collected where the critical group is, at station  
7 4.

8                   In the newer modelling that has been done  
9 by EcoMetrix, what we have for VOX Gases is a prediction  
10 of 56.7 becquerels per metre cubed relative to the value  
11 in the table, station 1 for 2006, of 36.7 becquerels per  
12 metre cubed. And so this should give you a feel of where  
13 the science is at and how well the monitoring is doing.

14                   The model, which is a good model, basically  
15 is over-predicting by perhaps almost a factor of two of  
16 what is actually being observed in this new dataset and  
17 that is almost exactly what we expect from these sorts of  
18 derived release limit atmospheric models; over-prediction  
19 by about a factor of two or three times the actual  
20 monitoring data.

21                   **MEMBER BARNES:** And because there's been a  
22 concern that the atmospheric concentration of tritium,  
23 that your values are particularly applied to touchdown  
24 points and this is important relative to the site  
25 locations, and therefore the values recorded, is this --

1 this remains an important issue to interpret as opposed to  
2 just a set of numbers from specific locations?

3 **DR. MIHOK:** Yes, that's correct and that's  
4 why the new monitoring program has, if I remember  
5 correctly, 41 stations on different sectors at different  
6 distances from the facility and this does give us a good  
7 picture of where the plume is actually touching down and  
8 because of the valley situation that SRBT is in, that  
9 northwest to southeast direction is where most of the  
10 action actually occurs and there isn't that much happening  
11 to the north and to the south.

12 That is being borne out by the monitoring  
13 information that we are receiving.

14 At the moment Station No. 4 is one of the  
15 truly critical stations. That's where a large number of  
16 people live and that's where the model does predict the  
17 plume sort of hits the ground. It's a built-up area and  
18 therefore the actual numbers, for example, that you might  
19 use to convert HT to HTO are important. We do have a lot  
20 of comfort now that we have this fairly good data set of  
21 about six months of data that the models are behaving as  
22 predicted relative to the actual data being collected.

23 **MEMBER BARNES:** I'll just push it one  
24 further then.

25 Just focus on Station 4. Why would you see

1 that as much more affected to the change in '04 and '06  
2 stats from 104 to 27?

3 **DR. MIHOK:** Again, it is a bit dangerous to  
4 just look at the actual air concentration without  
5 standardizing it for the amount of tritium that was  
6 released. Again, that might be a little bit more  
7 informative, and we have had a fairly major change in the  
8 amount of tritium released on a yearly basis starting from  
9 2000 down to current times.

10 And without having the numbers in front of  
11 me, I can't be sure what the actual ratio would be 2004 to  
12 2006, but it might actually be quite close to what we see  
13 there. There may have been a reduction of about a factor  
14 of three or four in the amount released.

15 **MEMBER BARNES:** To be honest, exactly what  
16 I'm getting at is that if I take the numbers that Mr.  
17 Levesque has given, you know, those curves I started off  
18 with, his claim and all the histograms you gave, there's a  
19 significant reduction in emissions, then I would have  
20 expected to see some really significant trends in the  
21 atmospheric concentrations that you're showing here  
22 perhaps at all sites within certain variations, which you  
23 could argue are based on different wind projections.

24 But the highest value of all of these is in  
25 Station 13 in 2005 and there is none of these stations

1 that you're reporting here, the four in which we see a  
2 systematic reduction. You know, if you look at the  
3 distribution -- I realize it's a small set of numbers,  
4 four sets in four years -- for four stations in four  
5 years, but I don't see a trend of significant reduction  
6 that would correlate with the reduction in emissions that  
7 SRB has reported.

8 **DR. MIHOK:** Steve Mihok again, for the  
9 record.

10 In past CMDs we have stated that we have  
11 questioned both the validity of the environmental  
12 monitoring data and the environmental release data.  
13 That's what makes it so difficult to compare and contrast  
14 across here. We do have a general feel for what happened  
15 and we do feel that the numbers are reasonable in terms of  
16 ballpark because we can cross-compare levels in soil and  
17 air and water to what was measured as being released, but  
18 the real details are not easy to work with.

19 Therefore, when we try to understand  
20 whether an actual reduction has occurred between recent  
21 years, especially 2004, 2005, 2006, it's not absolutely  
22 clear that a reduction has occurred. It may have  
23 occurred, but it may also not have occurred and that is  
24 why in the past we have said that we have questions about  
25 the reliability of the data, and we really have to start,



1 I think, from a new benchmark, start from January 2006 and  
2 not dwell on some of the past data.

3 **MEMBER BARNES:** Okay. Let me take you to  
4 page 15 of your staff CMD, and that's Table 3, the average  
5 or maximum effective dose to the worker. Those are the  
6 workers in the plant. And I presume most of the values  
7 there are the dose that they're receiving within the plant  
8 as opposed to outside of the plant, which we have been  
9 addressing in atmospheric distribution of tritium and so  
10 on.

11 But if I could pose the same sort of  
12 scenario, given the reduction of -- given the increased  
13 efforts by SRBT to reduce emissions and improve various  
14 aspects of their operations as a whole, both inside the  
15 plant as well as just the tritium emissions here, would I  
16 not have expected to have seen between 2000 and 2005 a  
17 lowering of these values that are reported, either the  
18 maximum individual or the average effective dose to staff,  
19 more than we see in those figures?

20 **MS. ERDMAN:** Ann Erdman, for the record.

21 The table that you find on page 15 is, as  
22 you've stated, for the workers inside the facility, not  
23 outside the facility. The majority of the work that SRB  
24 has been taking to reduce their emissions is for the  
25 emissions that are going outside the facility, not inside.

1                   In the past, the RP Program, the Radiation  
2                   Protection Program for SRBT has met requirements. We have  
3                   not ever found during our inspections a major deficiency  
4                   with the Radiation Protection Program. So those numbers  
5                   that you see in that table, you do see a variation during  
6                   some of those years. There were some small incidents that  
7                   occurred within the facility. I don't have the exact  
8                   dates or what they were, but you will see some variation,  
9                   but that is nothing to do with some of those initiatives  
10                  that SRBT has taken to reduce the emissions.

11                  **MEMBER BARNES:** But I recall from earlier  
12                  hearings there was some concern about the potential  
13                  procedures being used in an effort to try and reduce  
14                  emissions within the plant as much as possible that could  
15                  be picked up by the workers.

16                  Would you say that was true, Mr. Levesque?

17                  **MR. LEVESQUE:** I'm sorry. I don't  
18                  recollection what you're referring to.

19                  **MEMBER BARNES:** I'm going from memory here  
20                  on previous hearings for SRB Technologies where you had  
21                  indicated efforts that you were making to reduce potential  
22                  emissions to workers within the facility as well as  
23                  efforts that you're discussing here today which are  
24                  largely addressing stack emissions and groundwater  
25                  monitoring and so on.

1                   **MR. LEVESQUE:** In 2005 -- I think in this  
2 presentation as well -- we stated that we would remove the  
3 use of oil pumps, which is expected to reduce the dose to  
4 our employees.

5                   It's a little bit misleading also, just so  
6 you know, to look at that table because that table shows  
7 an average effective dose, but our staff moves around  
8 quite a bit between active and non-active areas. We have  
9 a fairly small staff, 36 employees, and if we were to  
10 immediately move people from the non-active area to the  
11 active area, it would change those numbers, in addition to  
12 the maximum individual effective dose. You could have the  
13 best average of all your staff and have one incident that  
14 would create a higher spike, but we have made reductions  
15 there as well and you can see that in our 2006 numbers as  
16 well that I've got now from 2005 and 2004.

17                   But we're now tracking where the  
18 individuals are spending their time, in what work areas,  
19 to be able to supply that in future annual compliance  
20 reports.

21                   **MEMBER BARNES:** One more question, Madam  
22 Chair, and that relates to the groundwater issues,  
23 specifically the report that staff made. The latest one  
24 is CMD 06-H16.D in which you have accepted a number of the  
25 actions that SRBT is putting in place and, clearly, you

1 express that time will tell whether all these actions are  
2 going to be appropriate.

3 But on page 6, which is the conclusions and  
4 recommendations respecting SRBT's report and  
5 implementation plan, you have a series of bullets that  
6 address the actions and measures and then you have numbers  
7 1 to 6 which are specifically the staff's recommendations  
8 for the implementation plan and schedule.

9 I wanted to address Items 4 and 5 on there.  
10 You indicate in 4 that the recommendation is that SRBT --  
11 how would I read this -- that precipitation intercepted by  
12 the existing roof being managed. That's fairly loose, I  
13 would suggest. So are you also recommending that the  
14 contamination be measured in that or simply that the  
15 process of gathering and scooping up and putting in the  
16 sewer is sufficient? Or are you specifically asking --  
17 which I think, Mr. Hendrickson in his report indicates,  
18 because the roof is really a potential area of  
19 contamination -- things are coming down the spouts and  
20 essentially being gathered, whether there's a capacity  
21 there to measure that, so that we actually do understand  
22 whether the material -- the rainfall coming off the roof  
23 itself is one of these areas of possible unknown in  
24 tracking the tritium uncertainties here? So are you  
25 asking that that contamination be measured?

1           I guess I could partly answer -- if I go on  
2 to item 5, you ask that SRBT consider routine sampling of  
3 the water that drains from those downspouts. But my  
4 suggestion was that they not just consider it. Why aren't  
5 you asking that they institute routine sampling of the  
6 water?

7           So those are my two linked together.

8           **MR. RABSKI:** Henry Rabski, for the record.

9           Staff's review of the report by SRBT  
10 identified the fact that the existing roof was a concern  
11 and that's why we brought up our recommendation to look  
12 into and address the precipitation that's being  
13 intercepted by the existing roof. In the report, SRBT was  
14 talking about constructing a new roof around the immediate  
15 stack area. We wanted them to also address the existing  
16 roof of the building. This would involve additional  
17 sampling to quantify what those contamination levels were,  
18 so that the appropriate action could be taken.

19           **MEMBER BARNES:** If we look at, on page 7,  
20 which gives us an aerial view of the plant, clearly the  
21 roof area is a large area. You're concerned about  
22 contamination on the site as a whole. You've captured  
23 measurements of that by the groundwater wells that are  
24 predominantly located to the north-west and north-east of  
25 the building. But clearly, the roof itself, which is

1       closest to the stack, could be expected to be a site of  
2       tritium contamination, since roofs -- since that water  
3       drains as opposed to what was asked before, "Where does  
4       the water go on the parking lot?" It just drains into the  
5       soil. Here it is already captured by a natural engineered  
6       system. Why wouldn't you be requiring measurement of  
7       that, as one of the recommendations, not just asking SRB  
8       to consider it? The way I think this whole thing goes on  
9       and on. Even given that they're asking for a modified  
10      roof structure near the stack.

11               **MS. ERDMAN:** Ann Erdman, for the record.

12               We would expect that SRBT would capture  
13      this rainwater. As you see in point 5, which you  
14      identified, that's something that we have identified. And  
15      SRBT has notified me that they are actually monitoring  
16      that precipitation. We'd expect that. In terms of the  
17      word "be managed", we haven't been specific on how to  
18      manage it. That would be up to SRBT to assess how it  
19      would be managed. We didn't want to be specific and tell  
20      them how to manage this potential contamination.

21               **MEMBER BARNES:** Yes. I guess my point on  
22      the management, which I think I, myself, should have  
23      picked up before making that comment, I think is picked up  
24      in 5. I was just anxious that part of the management be  
25      that you actually measure it -- measure the contamination.

1 And that, I think, is covered by my comments in 5.

2 But let me press again then for SRBT, on  
3 Day Two, will you provide the Commission with answers to  
4 the recommendations in 4 and 5; that is how you will  
5 manage it and the nature of the measurements that you will  
6 be taking of water draining from the new roof as well as  
7 the old roof?

8 **MR. LEVESQUE:** Yes. And I concur with Ms.  
9 Erdman. We have been doing measurements of the existing  
10 downspouts. It's an issue we're looking at. We first  
11 focused on the contamination in the stack area, because  
12 that was predominantly the issue of the Order. And the  
13 contamination -- stack drippings that we found there, as  
14 we know, was hundreds of times greater than it was  
15 anywhere else onsite. So that's where we first focussed.  
16 But with the monitoring that we're doing of the downspout  
17 will evaluate the run-off in the facility and consider  
18 collection, management or release. We don't know at this  
19 point, what the best approach would be, but I was looking  
20 maybe for a little bit of staff's opinion on that matter  
21 based on the results that had been taken to date.

22 **MEMBER BARNES:** So it would be helpful with  
23 the kind of map that you're giving us there, to indicate  
24 where the spouts are, where the water has been going and  
25 what kind of sampling, locations, and so on, on Day Two.

1                   If I could still -- my final comment, Madam  
2 Chair, is addressing page 7.

3                   You indicate you've put in three additional  
4 wells. I did have difficulty finding where they were.  
5 Unless I interpret it, I don't think anywhere in the  
6 document you give them numbers. But presumably they are  
7 in Figure 1 and then do I presume they're 06, 8, 9 and 10  
8 on that map on staff CMD page 7, Figure 1?

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

11                   Yes, they are.

12                   **MEMBER BARNES:** Okay. Thanks.

13                   **THE CHAIRPERSON:** Dr. Dosman.

14                   **MEMBER DOSMAN:** Thank you, Madam Chair.

15                   I'd like to ask several questions  
16 pertaining to the environment and then I'd like to ask the  
17 intervenor a question.

18                   To staff, I note that on page 6, the rating  
19 for environmental protection is "E"; both for program and  
20 implementation. And the trend is upward and there's been  
21 considerable discussion of this issue and also, there was  
22 considerable discussion of this issue on the previous  
23 session that was held in the context of the Order.

24                   I take it, Madam Chair, that we're really  
25 considering all the information today, whether it was on



1 the previous session or today's session. Thank you for  
2 confirming that.

3 I'd like to -- and I take it from the  
4 rating table on page 6 and from previous discussions that  
5 the "E" rating, which in itself is -- it says,

6 "... is merited when there is evidence  
7 of an absence, total inadequacy,  
8 breakdown, or loss of control of an  
9 assessment topic or a program."

10 Often accompanied by an order.

11 Could staff outline for us specifically,  
12 the several indications for the "E" rating, please?

13 **DR. THOMPSON:** Patsy Thompson for the  
14 record. Sorry.

15 Essentially, the rating of the  
16 environmental protection safety area is comprised of  
17 several elements. Some of them have more of a weight, in  
18 terms of the overall rating. Staff expects that the  
19 licensee will put in place measures to control or to  
20 prevent or minimize the release of substances, either  
21 radionuclides or hazardous substances to the environment.  
22 And so the greatest weight, when we rate the Environmental  
23 Protection Program, is to see what measures the licensee  
24 has in place to minimize releases to the environment.

25 Then we look at the measures in place to

1 actually be able to monitor reliably what is being  
2 released as well as what is in the environment, so that we  
3 can have assurance that the controls are appropriately in  
4 place and no further action needs to be taken.

5 In the case of SRB, the information that  
6 staff reviewed that SRB had collected over time as well as  
7 some of the independent monitoring that staff conducted  
8 indicated that members of the public around the SRB  
9 facility were protected; that releases were not reaching  
10 the public dose limit.

11 We did find over the last year with,  
12 essentially, the information staff looked at when the  
13 Order was issued last November, that there was a potential  
14 for contamination close to the facility that was not being  
15 properly controlled. Over time, additional information  
16 was provided from SRB's groundwater study that was  
17 submitted in March as well as the additional well  
18 monitoring data within the facility and so the "E" rating  
19 essentially comes from the fact that emissions are not  
20 being properly controlled to protect the area, the  
21 environment close to the facility.

22 **MEMBER DOSMAN:** Madam Chair, if I might?

23 Presumably staff has had an opportunity to  
24 review the documentation surrounding the two measures that  
25 are presumably being considered; one being a roof over

1 this area that would catch and trap rainwater or other  
2 forms of participation, and then I believe an additional  
3 paving of the area immediately surrounding this area.

4 I am just wondering if staff has had an  
5 opportunity to consider these measures and to determine  
6 whether or not these measures might be adequate in  
7 protecting the environment?

8 **MS. ERDMAN:** Ann Erdman, for the record.

9 CNSC staff reviewed the report and the  
10 order of which this report was made or written was to  
11 prevent the immediate contamination under the stack. If  
12 the licence were to be recommended CNSC staff are going to  
13 look at also a release limit, and that release limit will  
14 also have to be an addition to what SRBT is recommending.  
15 So that would be something that we will be looking at and  
16 if we do recommend the licence that will be coming to the  
17 Commission prior to the conclusion of the hearing.

18 **MEMBER DOSMAN:** Thank you.

19 So does that mean that staff has looked at  
20 these diagrams and so on and is of the view that the  
21 control would be appropriate?

22 **MR. HOWDEN:** Barclay Howden speaking.

23 What our position is right now is the  
24 protection of the environment is two-pronged. One, SRBT  
25 has submitted their plan in response to the amended Order

1 from the Commission. We have reviewed the plan, made our  
2 judgement on the plan and added some further  
3 recommendations to it for the protection of the --  
4 immediately around the facility.

5 If a licence were to go forward, the other  
6 prong of the protection of the environment is the emission  
7 limits that would have to be applied to the facility for  
8 overall protection not just within this area of the plant  
9 but as it goes out towards, away from the property. What  
10 we would be doing would be recommending those limits to  
11 you. We have not yet made that recommendation to you  
12 because, to a certain extent, the Commission's  
13 consideration of this plan is quite important because it  
14 would comprise one part of sort of the two prongs.

15 That is a simplification of the two prongs,  
16 but I wanted to make it very clear that emission limits  
17 are very important as well as review of this plan and  
18 potential acceptance with modifications.

19 **MEMBER DOSMAN:** I wonder if I might ask an  
20 additional question of staff.

21 I notice that in the documentation staff  
22 has withheld making a recommendation at this point  
23 regarding licence, and I would ask this question: Is  
24 staff confident that by the scheduled Day Two that staff  
25 will have sufficient information to be able to make such a

1 recommendation?

2 **MR. HOWDEN:** Barclay Howden speaking.

3 At Day Two we will be in a position to make  
4 a recommendation to the Commission on a licence based on  
5 the risks posed by the facility. As to what that  
6 recommendation would be, we are not fully there at the  
7 moment.

8 **MEMBER DOSMAN:** Madam Chair, I have a  
9 question for Dr. Hendrickson. I realize I have used some  
10 time. I seek your advice. Shall I go ahead at this time  
11 or wait for another round?

12 **THE CHAIRPERSON:** I'll monitor whether the  
13 question is suitable or not, Dr. Dosman.

14 **MEMBER DOSMAN:** Thank you.

15 I note, Mr. Hendrickson, that one of the  
16 comments that you made in your opening statement, which I  
17 believe you read, was that the situation -- and I think  
18 I'm quoting -- quotes, "...compromised our health".

19 Can you provide the Commission with any  
20 specific information that indicates that the health of  
21 individuals in the community is being compromised?

22 **DR. HENDRICKSON:** Thank you. Ole  
23 Hendrickson, for the record.

24 There has not been a formal health study of  
25 people in the vicinity of this facility. We have heard

1 anecdotal information of issues such as miscarriages. We  
2 will try to get some more information on that for you at  
3 the Day Two hearing. I can't really say much beyond that,  
4 but there are, I think, certainly concerns among the  
5 residents in the vicinity of the facility.

6 **MEMBER DOSMAN:** Thank you. I wonder if I  
7 might ask CNSC staff: Is staff aware of any specific  
8 information that would support or otherwise the statement  
9 that the health of the community -- that the situation has  
10 "compromised our health"?

11 **MR. HOWDEN:** Barclay Howden speaking.

12 I would like to ask Rachel Lane, our  
13 epidemiologist, to reply to that because we have looked at  
14 what has been done within the region -- the broad region  
15 of Pembroke with regards to the residents. I will ask her  
16 to reply.

17 **MS. LANE:** Rachel Lane for the record.

18 The Renfrew County District Health Unit  
19 provides fairly regular reports on the health of the  
20 community. Most recently, they conducted a mortality  
21 report. The mortality of the community was similar to  
22 that of Ontario. So there is no indication there that  
23 there is a reason for concern.

24 I would like to note that birth defects --  
25 as Dr. Hendrickson discussed, there has been no conclusive

1 evidence in the scientific literature that heredity  
2 defects are attributed to exposure from natural or  
3 artificial radiation, and that is based on a large  
4 accumulation of research.

5 The exposure to the public, to the critical  
6 group, right now has been estimated at 34 microsieverts  
7 per year as a result of SRBT. The dose limits to the  
8 public is 1 millisievert per year above background.  
9 Therefore, the exposure is about 1,000 times lower than  
10 the dose limit. If the exposure was at the dose limit,  
11 one would expect, based on ICRP risk calculations, to  
12 receive -- the community of Pembroke and the community of  
13 Laurentian Valley has approximately 20,000 people in it  
14 and that would be the area that one would look at.

15 The total risk to that community, if  
16 everyone within that community was receiving 1  
17 millisievert would be about 1.5 people within that 20,000  
18 population per year would receive cancer or, well, cancer  
19 effects. That would be almost impossible to detect.

20 Now, keep in mind that the actual exposure  
21 is 1000 times less than the public dose limit. At the  
22 public dose limit, about one to two people within the  
23 community may develop cancer, but the actual dose is 1000  
24 times less than what the public dose limit would be. So,  
25 the risk is undetectably small.

1 Thank you.

2 **MEMBER DOSMAN:** Thank you.

3 **THE CHAIRPERSON:** One of the questions that  
4 the Concerned Citizens of Renfrew County's submission  
5 talked about was with regards to whether there was a  
6 violation of the licence in terms of the release of stack  
7 washings. As I recall, the comment was they enquired  
8 whether the staff had knowledge and approval of this  
9 release and whether there was a violation of the license  
10 in that case.

11 Could the staff comment, please?

12 **MS. ERDMAN:** Ann Erdman for the record.

13 This would not be a non-compliance with  
14 their licence. They have specific documents listed on  
15 their licence for which they must comply with. This would  
16 be probably -- without looking at the documents, but it  
17 would be not in the program document directly, it would be  
18 the next level down. So, every change in procedure does  
19 not have to be approved by CNSC staff.

20 **THE CHAIRPERSON:** So that is the current  
21 license. Would that change with a new license or not?

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

23 No, it shouldn't.

24 **THE CHAIRPERSON:** Thank you.

25 The Concerned Citizens of Renfrew County



1       enquired with regards to the definition of processing and  
2       the issue of bulk splitting and whether that would be  
3       captured and how that would be handled, so could you  
4       provide some elaboration of that to the staff.

5                   **MR. RABSKI:** Henry Rabski for the record.

6                   The production of tritium light sources is  
7       described in total as processing that needs to occur so  
8       that the tritium light sources can be produced. Part of  
9       that process is the initial step which is taking the bulk  
10      tritium received at the facility to the next stage of  
11      processing and that is identified in the operational  
12      procedures that the facility undertakes in the preparation  
13      of light sources.

14                  It was also recognized as an activity that  
15      would be restricted as part of the changes to the licence  
16      so that bulk splitting could only occur when no other  
17      activity could occur. So, it's a single tritium work  
18      activity defined within the operating process and clearly  
19      part of the present operations.

20                  **THE CHAIRPERSON:** SRBT, is that how you  
21      understand the definition thereof?

22                  **MR. LEVESQUE:** Yes, it is.

23                  **THE CHAIRPERSON:** Thank you.

24                  With regards to the compliance -- this is a  
25      question to CNSC staff -- of the licensee since the

1 decision of the Commission with regards to the order,  
2 could you comment with regard to the compliance of the  
3 company, please?

4 **MS. ERDMAN:** Ann Erdman for the record.

5 The Commission asked that we would -- CNSC  
6 staff would be diligent in our compliance initiatives.  
7 Therefore, we looked at how best this is to be  
8 accomplished and since we have opened up an office up the  
9 Valley near to where Pembroke is located, we are actually  
10 using some of the staff members from that office to assist  
11 us in this endeavour.

12 We have gone to the SRBT facility; I  
13 believe the CMD states it's been three times and we have  
14 looked at what they are required to do. They are required  
15 to keep a log of all their operations. They also keep a  
16 precipitation log and they have their chart recorder. We  
17 then correlate all the information and we also -- since  
18 some of our staff do live in the Pembroke area, they are  
19 also keeping tabs on the weather on a daily basis up in  
20 Pembroke. I myself have been there recently, I think it  
21 was two or three weeks ago, and I also saw that they have  
22 installed a new precipitation monitor on the roof which is  
23 tied into a light and I believe, a buzzer inside the  
24 facility that also -- it sounds when it starts to  
25 precipitate.

1                   We have looked at the compliance and we  
2                   have seen that they are complying currently with the  
3                   amended order.

4                   **THE CHAIRPERSON:** One of the questions that  
5                   was raised by the intervenor, but I would like to broaden  
6                   it because the question that I had prepared was with  
7                   regards to the modern -- what one would call, modern --  
8                   standards which I realize could have a broad definition.

9                   So, when the CNSC looks at this facility,  
10                  understanding that we are starting a licensing process  
11                  again of a currently existing facility, and looking at  
12                  some of the issues the intervenor mentioned, exclusion  
13                  zones which we call buffer zones, et cetera, has the  
14                  Commission staff looked at the requirements on this  
15                  facility from the viewpoint of 2006?

16                  **MS. ERDMAN:** Ann Erdman for the record.

17                  In the document that the Concerned Citizens  
18                  of Renfrew County supplied, they refer to the department  
19                  U.S., the United States Department of Energy's handbook on  
20                  the safe handling of tritium.

21                  If a new facility were to be constructed in  
22                  Canada, the expectation is that the new facility would be  
23                  designed and built using the most up-to-date information  
24                  for the safe handling use of tritium. This would include  
25                  taking into account information in that handbook. Now,

1 that handbook is a guide and it's produced by the United  
2 States Department of Energy.

3 The design would then be assessed by the  
4 CNSC staff and an environmental assessment would also be  
5 required. In facilities that currently exist in Canada  
6 that are licensed by the CNSC, the licensee must comply  
7 with the current regulations and the Act, and the  
8 obligations of meeting the regulations are for the  
9 licensee, therefore, the licensee must comply.

10 **THE CHAIRPERSON:** Thank you. We are going  
11 to break for lunch in a moment.

12 I just wanted to make clear from the  
13 viewpoint of the Commission for the record, that the  
14 licensee has mentioned in several areas financial issues  
15 of SRBT in terms of how much it costs to do regulatory  
16 oversight, or to pay for the regulatory oversight, et  
17 cetera, but I think it must be absolutely clear from the  
18 viewpoint of the Commission that the economics of  
19 companies are not taken into account in the requirement.  
20 So, we put on the facilities that the requirements of the  
21 CNSC in terms of safety, security, protection of the  
22 people and the environment, is considered the essential  
23 basis of doing business in the nuclear cycle, and we  
24 ensure looking at the risks of the various facilities and  
25 looking at the areas in terms of standards that these are

1 taken into account, but that's the way we regulate. We  
2 don't regulate based on the financial burden of the  
3 facility. We understand that we are -- the requirements  
4 that you put into count cost money, that goes without  
5 saying, but that's not the role of the Commission to  
6 assess these and to mitigate in any way based on those  
7 costs.

8 I also wish to make clear that the CNSC has  
9 expectations that the staff will regulate, using  
10 standards, but every facility is expected to meet these  
11 standards and then the staff regulates against the  
12 standards that the burden -- as Mr. Levesque pointed out  
13 at the beginning, rests with the facility, it doesn't rest  
14 with the staff to meet these standards. The staff's job  
15 is to monitor that compliance. So I just wanted to make  
16 sure that that was clear.

17 What we're going to do is take a one-hour  
18 break. It is 12:15 p.m., so we'd like you to be back here  
19 by 1:15 p.m. and we'll continue with further questions.  
20 Thank you very much.

21 --- Upon recessing at 12:15 p.m.

22 --- Upon resuming at 1:18 p.m.

23 **THE CHAIRPERSON:** Ladies and gentlemen, if  
24 you could take your seats please. We're ready to  
25 commence.

1                   We will continue with questioning. We have  
2 a few more questions for the licensee and for CNSC staff.  
3 Our plan then, this afternoon, is to go in camera for some  
4 discussions with regards to financial guarantees. But we  
5 will close the session before that. So there would not be  
6 a need to wait for that.

7                   So this is a continuation of Day One in the  
8 Licence Application by SRB Technologies and I will turn to  
9 Dr. McDill for Round Two.

10                   **MEMBER MCDILL:** Thank you. Several, I  
11 think relatively short questions.

12                   My first is to staff, with respect to  
13 licensing. It brings up something one of the -- what the  
14 intervenor mentioned. If SRBT requires considerable third  
15 party support; is there any requirement for that to be  
16 incorporated in the licence?

17                   **MS. ERDMAN:** Ann Erdman, for the record.

18                   Currently SRB is using third parties.  
19 Currently in the licence, there is a current requirement  
20 that they do use a third party for the environmental  
21 monitoring and that is something that if staff were to  
22 recommend a licence, we would still be putting that  
23 forward in our recommendation.

24                   **MEMBER MCDILL:** Thank you.

25                   Second question is back to use of municipal

1       sewers.

2                   Maybe I should ask first of all -- my  
3       apologies. Does SRBT have a comment on that question or  
4       the intervenor have a comment on that question; the  
5       previous one, on third party?

6                   **DR. HENDRICKSON:** Thank you. Ole  
7       Hendrickson for the record.

8                   Just to say that we would also hope that,  
9       as I think has been indicated, that there would still be  
10      third party checks on the stack emissions monitoring, as  
11      well.

12                  **MR. LEVESQUE:** We intended to keep on using  
13      a third party for the use and environmental monitoring,  
14      whether we had the licence condition or not.

15                  **MEMBER McDILL:** Thank you.

16                  Now, my second question is back to the use  
17      of the municipal sewers again. Pardon me.

18                  Has there been any scoping and video  
19      checking of the -- either the SRBT drains out to the city  
20      main and then down the city mains to the municipal  
21      treatment plant? And I'll ask SRBT that, and maybe the  
22      staff can follow up.

23                  **MR. LEBLANC:** We've not done a rigorous  
24      assessment on the integrity of the drains, but from our  
25      research we've found that if there were to be any leaks in

1 the drains they'd be very small, especially in the area of  
2 the city that we are; it's a relatively newer area with  
3 newer pipes, a new industrial park. And if there were any  
4 leaks, usually -- because the pipe's not pressurized, it  
5 will allow water to seep in rather than out, because  
6 usually the pipes are right now at the water table level,  
7 where water is seeping in.

8 But even if the water was released into the  
9 ground, it's important to point out that activity release  
10 wouldn't really be significant compared to wash-out and  
11 the way our releases would be distributed over the course  
12 of the week and the day. But we've done a measurement at  
13 the outfall of the sewage plant and we checked it against  
14 our theoretical calculation and we were within 95 per cent  
15 of what we expected at the sewage plant. So, based on  
16 that one number -- and that's why we want to keep doing  
17 daily assessment, we're pretty confident that if there  
18 were any leaks or anything whatsoever, that they would be  
19 very small, if any.

20 **MEMBER McDILL:** Good, staff.

21 **MR. RABSKI:** Henry Rabski for the record.

22 Staff is not aware of any assessment of the  
23 sewer lines that have been done associated with this  
24 facility.

25 **MEMBER McDILL:** If I may, to SRBT; one of



1 the things that I'm always concerned about is a reactive  
2 instead of a proactive response. Even if the municipal  
3 system is only 10 to 15 years old -- I'm not sure what the  
4 age of this one is -- you know, the reality is that there  
5 are small cracks and openings and it would be helpful, I  
6 think, to assure yourselves of that.

7 Maybe you wish to make a comment. I don't  
8 know.

9 **MR. LEVESQUE:** That's why we perform that  
10 assessment, to be able to verify, but from what we know  
11 of, there's not really a method developed out there that  
12 can easily do this, but it's something that we're  
13 investigating right now.

14 **MEMBER McDILL:** And I guess my last  
15 question in this round. I wonder if I could have staff's  
16 comment for the community with respect to the current  
17 health risks posed by this facility if any, and then SRBT  
18 can respond.

19 **MR. HOWDEN:** Barclay Howden speaking.  
20 I'm going to ask Rachel Lane to comment on  
21 that.

22 **MS. LANE:** Can you repeat the question,  
23 please?

24 **MEMBER McDILL:** With pleasure. I wonder if  
25 you could comment, or staff could comment on -- for the

1       sake of the community, any existing health risks posed by  
2       this facility.

3               **MS. LANE:** Based on what we know about  
4       radiation risk and what we know about doses to the public  
5       as a result of SRBT, the risk is undetectably small.

6               **MEMBER MCDILL:** Thank you very much.

7               **THE CHAIRPERSON:** I think Mr. Graham has a  
8       question.

9               **MEMBER GRAHAM:** Yes. I have several  
10       questions with regard to groundwater monitoring and there  
11       was one of the overheads, or one of the inserts in our  
12       briefing books, that shows that, I believe it's Boundary  
13       Road is on one side and Valley River Road is on the other  
14       side of -- it goes through the industrial park.

15               Are there storm sewers on -- and I'll ask  
16       Boundary Road especially. Is there a storm sewer on  
17       Boundary Road?

18               **MR. LEVESQUE:** I'm not aware of any.  
19       Stéphane Levesque for the record.

20               **MEMBER GRAHAM:** Okay. Is there any -- are  
21       you aware of which way the water would flow -- rainwater  
22       run-off? If there's no storm sewers, then they must be  
23       ditched and it's within 500 metres or 400 metres of -- or  
24       300 metres of the -- and I think that's called Muskrat  
25       Creek. So you're within about 50 metres of the road, so

1 if there's a ditch, I'm wondering is -- what I'm wondering  
2 is parking lots and all the areas, heavy rains and so on,  
3 the run-off, the water that's not collected, where does it  
4 go? Has there been any monitoring as to which direction  
5 it goes and flows and so on?

6 **MR. LEVESQUE:** Stéphane Levesque for the  
7 record. I'll let Neil Morris from EcoMetrix, who  
8 performed the groundwater study, answer that question.

9 **MR. MORRIS:** Neil Morris for the record.

10 Yes, run-off from the parking lot that  
11 might contain tritium will flow in the direction of the  
12 road and for the most part, site run-off will end up in a  
13 ditch that runs along, parallel to Boundary Road.  
14 Subsequent to that, we're not entirely sure where that  
15 water goes but we're assuming that there is some  
16 hydrological connect to Muskrat Creek -- Muskrat River.  
17 Our monitoring data -- we recognize that fact in the  
18 groundwater study and undertook to take samples from the  
19 river and there is no difference in tritium concentrations  
20 up-gradient of where that water might report, versus down-  
21 gradient.

22 **MEMBER GRAHAM:** Has there been any soil  
23 samples taken between the SRB facility and Muskrat Creek  
24 or Muskrat River to see concentrations and does it deplete  
25 itself as it gets to the river? Have you taken -- you

1 have no wells at all between -- really, between -- to the  
2 southeast you have no wells at all in that area, or I  
3 don't think you do.

4 First of all, the question is, do you have  
5 wells, because it doesn't show on any map?

6 **MR. MORRIS:** Neil Morris for the record.

7 There are wells that exist on CN property  
8 which is located between SRB Technologies' facility and  
9 the Muskrat River. Approximately, in the immediate down  
10 gradient direction with respect to groundwater flow, we  
11 have collected groundwater samples from those wells  
12 repeatedly.

13 The collection of soil samples wouldn't be  
14 of relevance if you're talking about any kind of liquid  
15 flow from SRB to the river. So I'm just pointing out that  
16 that wouldn't shed any light on that particular issue.

17 **MEMBER GRAHAM:** Well, as a lay person, I'll  
18 ask a question. Over the past before you, and you're only  
19 starting to collect the water now or recently collecting  
20 the water from the stacks, so any water that hit the  
21 stacks and ran down the drippings and so on, consequent --  
22 subsequently went across the parking lot and went  
23 somewhere.

24 Tritium, does it break down in the soil  
25 that quickly that you didn't find -- soil samples don't

1 show tritium and the plume in which it's moving? And  
2 that's a lay question that I would like to know.

3 **MR. LEVESQUE:** Stéphane Levesque for the  
4 record.

5 Just regarding soil samples, we've taken  
6 soil samples on the property and if you just look right at  
7 the front of the property, lined up with NWO6-1, 8 and 2,  
8 we've taken soil samples from that whole front and the  
9 samples range between 804 and 2,374 becquerels per litre,  
10 just to give you some indication of what it is right at  
11 the boundary of the site.

12 Mr. Morris may want to add something to  
13 that.

14 **MR. MORRIS:** Yes. Those very proximate  
15 measures of tritium in soil moisture show that there is a  
16 very rapid decline between the immediate base of the  
17 stacks and the facility boundary. The decline would be  
18 even greater beyond that and once you get past Boundary  
19 Road, probably even closer, what you're seeing in the soil  
20 is driven almost exclusively by what's in the air as  
21 opposed to what there might be in any water flowing over  
22 ground.

23 The natural path would be for water,  
24 whenever it hits any kind of open and unpaved surface soil  
25 like gravel, would be to travel downward, not laterally.

1 We don't expect, and nobody would reasonably expect that  
2 there is transport of tritium in a liquid form in a rapid  
3 manner from SRB towards Muskrat Creek.

4 **MEMBER GRAHAM:** If I may, Madam Chair, just  
5 a couple of other questions?

6 With regard to the wells, how deep are your  
7 wells? Do they go down to bedrock? How deep are your  
8 test wells or are they very shallow? I know about -- and  
9 I believe those questions were asked by Dr. Barnes at a  
10 subsequent hearing before, but I just forget. Are they  
11 adequate to do the proper testing, I guess that's my  
12 question, and how deep are they?

13 **DR. NICHOLSON:** Ron Nicholson for the  
14 record.

15 The wells on average are what you would  
16 consider relatively shallow. They go down about five  
17 metres, about 15 feet, where the bottoms of the screens  
18 are picking up the groundwater at this time. The issue of  
19 whether we have adequate wells to define the groundwater  
20 affected by elevated levels of tritium was brought up at  
21 the last -- at our last discussion hearing here and  
22 because of those discussions and the concern that Dr.  
23 Barnes raised, SRB has, under our advisement, conducted  
24 some geophysical work that would then define the depth of  
25 the bedrock at the site and we're going ahead. In fact,

1 the people that are doing that work are onsite right now.

2 So although we don't have the information  
3 at this time, we are developing the information base to  
4 get the depth to bedrock.

5 **MEMBER GRAHAM:** And you'll have that back  
6 for Day Two?

7 **DR. NICHOLSON:** Ron Nicholson.

8 We expect to have a draft report available  
9 for Day Two to discuss the depth of bedrock.

10 **MEMBER GRAHAM:** Do CNSC staff wish to  
11 comment any further on that?

12 **MR. HOWDEN:** I'd like to ask Peter Flavelle  
13 to provide any comments we may have.

14 **MR. FLAVELLE:** Thank you. Peter Flavelle,  
15 for the record.

16 There's not too much to comment on, really,  
17 with the depth of wells. The assumptions were made in the  
18 groundwater study of a uniform thickness of overburden.  
19 That was questioned by our review and, also, I believe, by  
20 some commissioners in previous hearings and SRBT has  
21 undertaken to try to address that question with their  
22 planned geophysical survey.

23 Subsequent to that, we expect to go back  
24 and re-examine the complete set of monitoring that they  
25 have in place in light of what the survey tells them, to

1 determine whether or not there needs to be some additional  
2 wells put in to look for a greater depth or potentially  
3 for profiling through the depths of the overburden, if  
4 it's significantly thick enough and if there is any  
5 indication of any potential or structural controls on the  
6 groundwater flow underneath the site.

7 **MEMBER GRAHAM:** Thank you.

8 Madam Chair, one further question, and I  
9 realize we're going in camera for part of this, but my  
10 question, I think, for the record, and if I'm out of order  
11 you can rule so.

12 And this is to SRBT. You don't own the  
13 property; you lease it or you rent it or whatever it might  
14 be. The landowner, is he totally aware of all of the  
15 activities and the licensing applications and the Stop  
16 Order or the Designated Officer's Order of August, and so  
17 on? Is the landowner aware of all of these things as it  
18 goes along, all of the actions that CNSC has imposed as we  
19 go along?

20 **MR. LEVESQUE:** Stéphane Levesque for the  
21 record.

22 Yes, the landowner is aware, who also  
23 leases the building to us.

24 **THE CHAIRPERSON:** Dr. Dosman, did you have  
25 a question?



1                   **MEMBER DOSMAN:** Madam Chair, thank you.  
2                   Just a short question on page 5 of your  
3 presentation. SRBT indicated that the new bubbler system  
4 has more conservative readings than your old bubbler  
5 system. So which is correct? Was the old bubbler system  
6 correct or is the new one correct?

7                   **MR. LEVESQUE:** Stéphane Levesque for the  
8 record.

9                   We note that there is a certain level of  
10 acceptance criteria between bubbler measurements that are  
11 accepted in the industry and both the bubblers we showed  
12 were within that level of acceptance compared to the third  
13 party bubbler, but we do know that the new bubbler we have  
14 put in place, as you said, gives more conservative  
15 numbers.

16                   **MEMBER DOSMAN:** Thank you.

17                   And to CNSC staff, do you have confidence  
18 that the new bubbler system measuring lower levels is  
19 indeed the more accurate?

20                   **MR. HOWDEN:** Barclay Howden speaking.

21                   I'm going to ask one of our environmental  
22 protection specialists, Mr. Avijit Ray, to respond to that  
23 question because he is familiar with the bubbler systems.

24                   **MR. RAY:** This is Avijit Ray for the  
25 record.

1                   We compared the old bubbler system with the  
2                   AECL bubbler system which is the third party bubbler  
3                   system and the old bubbler system was inefficient so we  
4                   recommended to get a new bubbler system. And the new  
5                   bubbler system, when compared to the third-party bubbler  
6                   system, collected more tritium than the third-party  
7                   bubbler system, and it's around 15 per cent more. So it  
8                   is more efficient than the third-party bubbler system.

9                   **MEMBER DOSMAN:** Thank you.

10                   Madam Chair, if I might, an overall  
11                   question to staff?

12                   Is CNSC staff confident that SRBT is now in  
13                   a position to accurately monitor stack emissions and  
14                   report them?

15                   **MR. HOWDEN:** Barclay Howden speaking.

16                   In response to that, the answer is yes.

17                   **MEMBER DOSMAN:** Thank you.

18                   **THE CHAIRPERSON:** I just wanted to make a  
19                   comment. There was a lot of discussion about third party  
20                   and the benefits of third party. I just think that there  
21                   is a balance here. I think that relying on third parties  
22                   totally for a whole life of a facility is not the best  
23                   either and that the expectations of the CNSC is that --  
24                   Commission is that there is in-house expertise that is  
25                   augmented by third party. I think we are in a very

1 specific situation right now, but I don't want us to think  
2 that hiring consultants is exactly what we are  
3 recommending from the Commission. This is not what we  
4 think is a sustainable thing over a long period of time.  
5 In-house expertise is necessary.

6 I'd like, then, to turn to the Concerned  
7 Citizens of Renfrew County, if they have any questions  
8 that they wish to ask through the Chair and the Chair will  
9 determine if those are suitable questions for this time.  
10 If you could give all your questions and then to whom you  
11 would address them and then it will be through the Chair.

12 **DR. HENDRICKSON:** Thank you, Madam Chair.

13 Ole Hendrickson, for the record.

14 I'm going to be fairly brief about this.

15 One of the questions in our presentation was the  
16 availability of the monitoring data collected since, I  
17 guess, November of last year, but particularly since April  
18 this year. Since we haven't really seen any, will there  
19 be a summary or some kind of -- or rather than a summary,  
20 perhaps some fairly detailed data presentations made  
21 available for Day Two? I think this has been discussed,  
22 but we would just like a clear assurance that that will be  
23 available.

24 A second point, we asked if there are  
25 operations other than stack washing that might be

1 significant contributors to liquid discharges and would be  
2 appropriate to consider. And just to clarify on that  
3 point would be helpful.

4 I guess one more which is just an  
5 observation which is that we have really not heard about a  
6 discussion of remediation and whether SRB's planned  
7 remediation activities are considered acceptable by staff.  
8 So those would be, I guess, my three questions.

9 Thank you.

10 **THE CHAIRPERSON:** Thank you very much.

11 I think all three questions are valid and  
12 submissible today.

13 I would ask SRBT and then staff to comment  
14 on each of those questions. To the extent possible, I  
15 would like these questions to be answered today. I'm not  
16 absolutely thrilled about having everything go over to Day  
17 Two. I don't think that's the purpose of this.

18 So first of all, with regards to  
19 availability of monitoring data, will that be available in  
20 your supplementary for Day Two?

21 **MR. LEVESQUE:** Yes, not just in the  
22 supplementary, but I will provide it to the Concerned  
23 Citizens of Renfrew County within approximately about a  
24 week. We have had their request only on October 16<sup>th</sup> and  
25 we were preparing for the hearing, so we weren't able to

1 provide them all the information in time, but we will  
2 gladly do that sometime throughout the week next week.

3 **THE CHAIRPERSON:** And the Commission would  
4 be interested in that too. So thank you, Mr. Levesque.

5 **MR. LEVESQUE:** Of course, yes.

6 **THE CHAIRPERSON:** The second would be to  
7 SRBT and then also to staff, which would be alternatives  
8 to stack washing, starting with SRBT.

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

11 Today we haven't identified any activity  
12 that would constitute the same level as stack washings, if  
13 that's a question regarding activity or concentration, but  
14 if it's regarding concentration, there hasn't been any  
15 other activity on site that we've done.

16 **THE CHAIRPERSON:** Staff?

17 **MR. HOWDEN:** I'm going to ask Ann Erdman to  
18 comment on that.

19 **MS. ERDMAN:** Ann Erdman, for the record.

20 Staff's position is documented in CMD 06-  
21 H16.D where we conclude that SRBT has not identified all  
22 sources of groundwater contamination, and one of the  
23 recommendations, it's number 3, found on page 6, is that  
24 SRBT employ a systematic and quantitative analysis of the  
25 sources and their potential contribution to groundwater

1           contamination.

2                           **THE CHAIRPERSON:** The way I read that --  
3           was that the nature of the question? I don't think that  
4           was the nature of the question for the staff point of  
5           view. It was alternatives in methodology and technique, I  
6           believe, to stack washing, which is the way SRBT --  
7           perhaps if you wish to restate that question, Dr.  
8           Hendrickson.

9                           **DR. HENDRICKSON:** Thank you, Madam Chair.  
10           Ole Hendrickson.

11                          Really, my question got to the discharge of  
12           stack washing, which Mr. Levesque answered. He said that  
13           there wouldn't be anything equivalent to stack washing,  
14           but I guess I'm still wondering would there be some other  
15           fairly significant discharges to the sewer system from the  
16           facility other than stack washing?

17                          **THE CHAIRPERSON:** Which I think is what  
18           staff answered then. Okay.

19                          Anything you would like to add, Mr.  
20           Levesque? No. Thank you.

21                          The third was, I think, an observation but  
22           a question really. I think it is with regards to the  
23           remediation plans from the point of SRBT and the  
24           suitability of any plans to staff, any comments you would  
25           like to make with regards to remediation. Starting with

1 SRBT.

2 **MR. LEVESQUE:** At the time that we wrote  
3 the report on September 25<sup>th</sup>, we didn't have all the data  
4 available yet as to well measurements and so on and so  
5 forth. So we proposed a pumping mode of remediation.

6 The CNSC, in their CMD 06-H16.D point out  
7 passive remediation as another method, and like all the  
8 other recommendations that they made, we will be  
9 considering that.

10 **THE CHAIRPERSON:** Staff.

11 **MR. HOWDEN:** I would like to ask Dr.  
12 Thompson to comment on remediation.

13 **DR. THOMPSON:** Patsy Thompson, for the  
14 record.

15 From staff's point of view, the information  
16 that was available in the documents submitted by SRB on  
17 September 25<sup>th</sup> was incomplete and did not provide enough  
18 information for us to be able to judge the appropriateness  
19 of the mitigation measures -- the remediation measures put  
20 forward by SRB, and that's why on page 5 of CMD 06-H16.D  
21 we essentially state that the effectiveness of passive  
22 remediation, including natural decay and dispersion,  
23 should be assessed to determine if other measures need to  
24 be implemented in the future.

25 **THE CHAIRPERSON:** Thank you.

1 I draw everyone's attention to the  
2 transcripts which will be available, as the Secretary  
3 said, quite soon, I think, because there's some important  
4 requests from the Commission and I think they should be  
5 looked at seriously for Day Two.

6 Before we proceed into an in camera  
7 session, I will ask the Secretary to provide for the  
8 record background remarks with regards to the request from  
9 SRBT.

10 Mr. Secretary.

11 **MR. LEBLANC:** Thank you, Madame Chair.

12 In SRBT's CMD 06-H16.1C which has been  
13 protected on the basis that it contains sensitive,  
14 financial or commercial information, SRB Technologies has  
15 requested an exemption from the application of the licence  
16 requirement that currently requires that an acceptable  
17 financial guarantee be in place by October 31<sup>st</sup>, 2006.

18 Without going into details, SRB  
19 Technologies has submitted that the effect of orders  
20 issued these past 12 months has made it impossible for it  
21 to put a financial guarantee in place by October 31<sup>st</sup>,  
22 2006.

23 SRB Technologies has further submitted that  
24 it anticipates being able to do so by May 30<sup>th</sup>, 2007 as  
25 part of a licence condition to a renewed licence.



1                   To assist in its consideration of this  
2 matter, the Commission wishes to ask SRB Technologies  
3 whether its request for exemption could be considered or  
4 characterized instead as a request for amendment of the  
5 current licence; that is, to modify the deadline of  
6 October 31<sup>st</sup>, 2006 to a date to be determined by the  
7 Commission.

8                   **THE CHAIRPERSON:** That's a request.

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

11                   Yes.

12                   **THE CHAIRPERSON:** Thank you.

13                   So the members will now move into closed  
14 session to ask questions with regards to the matter  
15 referred to in CMD 06-H16.1C.

16                   Mr. Levesque.

17                   **MR. LEVESQUE:** I'm sorry, before we close,  
18 I wonder if I could ask a question of the Commission  
19 regarding the plan, just one question on the position.

20                   We have reviewed the CNSC staff document  
21 CMD 06-H16.D on page 6 which lists six recommendations.  
22 The first one basically asking the Commission to approve  
23 the plan which includes and not limited to sampling  
24 collection and the other conditions, I was wondering if it  
25 was possible to have the Commission consider putting in a

1 licence, if one should be recommended in issue, to have  
2 some target dates to have this completed, because we want  
3 in the end to have the Order closed and we would like to  
4 be able to operate in periods of precipitation, and we are  
5 in full agreement with the recommendations of the CNSC  
6 staff. We will respond to all of them and address all of  
7 them, but we would like to know if it's possible to find a  
8 method to bring closure to the issue in the end.

9 **THE CHAIRPERSON:** Thank you very much for  
10 that, and the Commission will take that under  
11 consideration. Thank you.

12 **MR. LEVESQUE:** Thank you.

13 **THE CHAIRPERSON:** So as I said, the Members  
14 would like to invite SRBT and the staff to move in a  
15 closed session to look at matters referred to in CMD-06-  
16 H16.1C, which is of a commercial -- financial or  
17 commercially-sensitive information.

18 For the rest of us, the hearing is now  
19 closed for today.

20 Mr. Secretary?

21 **MR. LEBLANC:** Thank you, Madame la  
22 Présidente.

23 This hearing is to be continued with Day  
24 Two on November 27, 2006, here in the CNSC offices. The  
25 public is invited to participate either by oral

1 presentation or written submission on Hearing Day Two.  
2 Persons who wish to intervene on that day must file  
3 submissions by November 16, 2006.

4 The hearing is now adjourned to November  
5 27, 2006.

6 Bonjour.

7 **THE CHAIRPERSON:** Thank you.

8 --- Upon adjourning at 1:49 p.m.

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