

1 **HEARING DAY ONE**

2 **Bruce Power Inc.:**

3 **Environmental Assessment Screening Report for the**
4 **return to service of Units 3 & 4 of the Bruce**
5 **Nuclear Generating Station (NGS) A**

6 THE CHAIRPERSON: We will now
7 return to our agenda with item number 4, which
8 concerns the matter of the Environmental
9 Assessment Screening Report for the return to
10 service of units 3 and 4 of the Bruce Nuclear
11 Generating Station A.

12 MR. LEBLANC: This is a one-day
13 hearing. The Notice of Public Hearing 2002-H-18
14 was published on September 20, 2002. The public
15 was invited to participate either by oral
16 presentation or written submission. November 27
17 was the deadline set for filing by intervenors.
18 The Commission received 45 requests for
19 intervention.

20 CMDs 02-H26.20, 02-H26.23 and 02-
21 H26.24 were received after the deadline. Based on
22 its consideration of these matters, a panel of the
23 Commission accepted the interventions. A record
24 of the decision will be published on our website
25 and sent to affected parties.

1 Furthermore, two requests to
2 extend the deadline for public comment were
3 received. The panel of the Commission established
4 to consider these requests has rejected the
5 requests for the extension of the public comment
6 period.

7 Madam President.

8

9 **02-H26**

10 **Oral presentation by CNSC staff**

11 THE CHAIRPERSON: I would like to
12 start with hearing this morning by calling on the
13 oral presentation by the CNSC staff as outlined in
14 CMD document 02-H26. With that, I will turn it
15 over to Mr. Blyth. Good morning, Mr. Blyth.

16 MR. BLYTH: Good morning, Madam
17 President, Members of the Commission. For the
18 record, my name is Jim Blyth. I am the Director
19 General of Power Reactor Regulation at the CNSC.

20 I am accompanied today at the
21 front table by Mr. Jim Douglas, who is the CNSC's
22 Director of the Bruce Compliance and Licensing
23 Division and Mr. Guy Riverin, who is the Project
24 Manager for the Bruce A Environmental Assessment.

25 CMD 02-H26 Concerns that

1 assessment of the restart of units 3 and 4 at the
2 Bruce Nuclear Generating Station. I will ask Mr.
3 Douglas to take the microphone from now on.

4 Thank you.

5 MR. DOUGLAS: Good morning, Madam
6 President, Members of the Commission.

7 We are here this morning to
8 discuss the screening report on the environmental
9 assessment of the proposed restart of units 3 and
10 4 at Bruce A Generating Station. In November
11 2001, Bruce Power applied for an amendment to the
12 current operating licence to permit the restart of
13 units 3 and 4.

14 The Canadian Environmental
15 Assessment Act requires that before the
16 Commissioners make a decision on the application,
17 the CNSC must be satisfied that the restart
18 project will not likely cause significant
19 environmental effects. To this end, CNSC staff
20 determined that a screening type federal
21 environmental assessment was required.
22 Environmental assessment guidelines which
23 described the basis for performing the
24 environmental assessment and focus the assessment
25 on the relevant issues and concerns were prepared

1 by CNSC staff and approved by the Commission in
2 April 2002.

3 These guidelines provide specific
4 direction to Bruce Power on how to document the
5 technical environmental assessment study, which
6 had been delegated to them by the CNSC staff
7 pursuant to sub-section 17.1 of the Canadian
8 Environmental Assessment Act.

9 In addition, the guidelines
10 provide a means of communicating the CNSC's
11 environmental assessment process to stakeholders.
12 CNSC staff and experts from other federal and
13 provincial agencies reviewed and commented upon
14 Bruce A's draft environmental assessment study
15 report. The draft was revised and finalized,
16 taking into account comments received from the
17 expert reviewer.

18 The final environmental assessment
19 study report was subsequently used by CNSC staff
20 to prepare a draft screening report. This report
21 was issued for a six-week public review and
22 comment period. The final screening report, which
23 is being considered today, was then prepared.

24 Shortly my colleague, Mr. Guy
25 Riverin, who is an environmental assessment

1 specialist with the Processing Facilities and
2 Technical Support Division, will describe the
3 screening process in detail, the environmental
4 assessment results, the public and government
5 consultation process, key issues and concerns
6 identified, and will give CNSC staff's conclusions
7 and recommendations.

8 Currently, all four units of Bruce
9 A are in a defuelled, laid up guaranteed shutdown
10 state in accordance with the operating licence.

11 Bruce Power plans to restart units
12 3 and 4 and operate these units for a period of
13 eight and 13 years respectively. Only the
14 screening report on the environmental assessment
15 is being considered at this hearing.

16 It is planned to discuss the
17 restart of units 3 and 4 at hearings in January
18 and February, 2003. This, of course, is dependent
19 on the Commissioners accepting the conclusions of
20 the environmental assessment.

21 I will now pass the presentation
22 to Mr. Riverin, who will give you details of the
23 environmental assessment process.

24 M. RIVERIN: Bonjour, madame la
25 présidente, mesdames et messieurs les

1 commissaires.

2 Mon nom est Guy Riverin,
3 spécialiste en évaluation environnementale,
4 division des installations de traitement et du
5 soutien technique.

6 The rest of my presentation will
7 be in English.

8 This slide illustrates the various
9 steps undertaken by staff to fulfil the
10 requirements of the CEAA, the Canadian
11 Environmental Assessment Act, all of which are
12 described in more details in the CMD.

13 This comprehensive process lasted
14 15 months from the date of determination that an
15 environmental assessment was required on September
16 11, 2001, to today's hearing. Many opportunities
17 were provided for input from the public, First
18 Nations and stakeholders by Bruce Power, CNSC
19 staff, and the Commission, through its hearing
20 process.

21 All public, First Nations and
22 stakeholder comments received by CNSC staff were
23 reviewed, considered and addressed. These can be
24 found in Appendices 3 and 4 of the screening
25 report annexed to the CMD.

1 The EA guidelines approved by the
2 Commission identified the scope of the project
3 considered in the assessment. In this case, it
4 included all operations required to refuel and
5 return to service units 3 and 4 at Bruce A, to
6 operate the units for their remaining operation
7 life, eight and 13 years respectively, and to
8 decommission the units.

9 The scope of assessment included
10 all factors required for screening EAs,
11 environmental assessments, included in paragraphs
12 16(1)(a) to 16(1)(d) of the Canadian Environmental
13 Assessment Act, plus some of the discretionary
14 factors included in paragraph 16(1)(e), such as
15 purpose of the project, need for and requirements
16 for a follow-up program, and the likely effects of
17 the project on the capacity of renewable resources
18 and non-renewable resources to meet the needs of
19 the present and those of the future.

20 Other factors such as the need for
21 the project and the alternatives to the project
22 were not included in the scope of assessment
23 approved by the Commission.

24 The environmental assessment
25 guidelines also describe the methodology to be

1 used in preparing the environmental assessment
2 study report and the screening report. It also
3 included the requirement for a public and
4 stakeholder consultation program.

5 The assessment focused on the
6 components of the environment listed in this
7 slide. It also considered normal operations and
8 the effects of malfunctions and accidents.

9 The assessment of the direct
10 effects of the project on the environment
11 described in Section 9.1 of the screening report
12 was carried out in a step-wise manner as follows:
13 Identifying potential interactions, likely
14 effects, between the project and the environment;
15 examining potential adverse effects to identify
16 likely measurable effects; identifying mitigation
17 measures that could eliminate, reduce or control
18 measurable adverse effects where feasible;
19 determining adverse residual effects remaining
20 after mitigation measures; and finally, where
21 likely adverse residual effects remain, assessing
22 their significance.

23 The assessment also considered
24 cumulative effects, effects of the environment on
25 the project, effect of the project on

1 sustainability on renewal and non-renewable
2 resources, and effects of decommissioning.

3 This methodology is consistent
4 with standard practices used for environmental
5 assessments and with guidance provided by the
6 Canadian Environmental Assessment Agency.

7 The initial screening examined 22
8 project systems, including normal operations, 12
9 conventional accidents with chemicals lubricants
10 and oils and two categories of severe postulated
11 nuclear accidents to identify those that could
12 possibly interact or affect each of the
13 environmental components identified.

14 In all, 153 interactions were
15 identified. Using criteria such as regulatory
16 standards and guidelines, existing conditions, the
17 experience of technical specialists, each of the
18 153 interactions was assessed to determine which
19 of these resulted in a measurable effect on the
20 environment. Ninety-five of the 153 interactions
21 were identified as likely measurable effects and
22 were advanced for detailed assessment. Each of
23 these 95 likely measurable adverse effects was
24 considered to identify possible means of
25 mitigation that would eliminate, reduce or control

1 these effects.

2 This further assessment resulted
3 in the identification of five likely adverse
4 residual effects of the project on the environment
5 that were advanced for assessment of significance.

6 Of the five likely adverse
7 residual effects assessed for significance, one
8 was related to normal operation. The other four
9 to postulated accidents and malfunctions.

10 These are increased emissions of
11 hydrazine in the atmosphere as a result of the
12 operation of the steam and feed water system; the
13 release of tritium in Lake Huron as a result of a
14 leak in a moderator heat exchange into the service
15 water and then into the condenser cooling water;
16 acute radiation dose to the public as a result of
17 radioactivity releases from a severe nuclear
18 accident; acute radiation dose to non-human biota
19 as a result of radioactivity from a severe nuclear
20 accident; an effect of hydrazine spill and water
21 fall within Lake Huron as a result of a spill in
22 the condenser cooling water discharge dock.

23 Magnitude, extent, duration,
24 frequency and permanence of the effect were
25 criteria used in determining the significance of

1 these residual effects. The conclusion of the
2 environmental assessment, using these criteria,
3 was that none of these five likely adverse
4 residual effects were significant.

5 The environmental assessment also
6 considered cumulative effects, which are those
7 incremental effects of the project when added to
8 or combined with the effects caused by other
9 projects or activities at the site as well as
10 offsite.

11 Twenty-two projects that could
12 possibly overlap with the Bruce A restart project
13 were included in the assessment of cumulative
14 effects. Particular attention was given to
15 cumulative effects of radiation doses to members
16 of the public and nuclear energy workers. The
17 environmental assessment concludes that there is
18 no likely adverse cumulative effects caused by the
19 project, as the incremental dose to the public and
20 nuclear workers was found to be well below CNSC's
21 regulatory limit.

22 The assessment covered the effect
23 of the environment on the project, as well as the
24 effects of the project on renewable and non-
25 renewable resources. In both cases, the

1 environmental assessment concluded that it is
2 unlikely that there would be significant adverse
3 effects.

4 An assessment of the potential
5 future effects of decommissioning of Bruce A,
6 based on a preliminary decommissioning plan,
7 determined that sufficient technology and
8 experience will be available for the future
9 decommissioning of Bruce A, with no likely adverse
10 residual effects anticipated.

11 Overall, the assessment concluded
12 there was no significant adverse effects likely to
13 be caused by the project under normal operations
14 or under malfunctions and accidents.

15 A follow-up program is required to
16 determine if the environmental effects and
17 cumulative effects are as predicted in the
18 environmental assessment and to confirm whether
19 the mitigation measures identified are effective
20 and, thus, determine if any additional mitigation
21 strategies are required. The plan identifies 12
22 activities for the pre-restart follow-up program.
23 These are related to radiation and radioactivity,
24 surface water resources, the aquatic environment,
25 the geology and hydrogeology, terrestrial

1 environment and cultural heritage and aboriginals.

2 The plan also identifies 22
3 follow-up and monitoring activities to be
4 implemented after the restart of Bruce A. Most
5 are related to radiation and radioactivity,
6 surface water resources and aquatic resources.

7 If the conclusion of this
8 environmental assessment is accepted by the
9 Commission, the details of the follow-up programs
10 will be developed by Bruce Power in consultation
11 with CNSC staff and other interested parties, such
12 as federal and provincial agencies, First Nations,
13 and local community groups.

14 The plan will then be integrated
15 into the CNSC licensing and compliance program, to
16 be presented to the Commission at a future hearing
17 if the Commission accepts the recommendation
18 regarding this EA.

19 For the Bruce A restart, the
20 following public consultation steps were taken. A
21 public registry was established. That included
22 all correspondence and documentation related to
23 the environmental assessment. Bruce Power held 11
24 open houses in all parts of the regional study
25 area from July 2001 to April 2002. It distributed

1 four newsletters to more than 20,000 households in
2 the project area at different intervals. It held
3 meetings with more than 20 public and stakeholder
4 groups, including one of the First Nations located
5 in the regional study area.

6 Information about the
7 environmental assessment was available on both
8 Bruce Power and CNSC websites, including
9 information regarding access for toll-free
10 telephone lines.

11 Information about the
12 environmental assessment, including the
13 environmental assessment study report, draft
14 screening report, and CMD 02-H26 were placed in
15 seven libraries in the project area.

16 CNSC consulted First Nations and
17 other identified stakeholders, both at the
18 environmental assessment guidelines and draft
19 screening report stages. The draft screening
20 report and notices inviting public comments were
21 mailed directly to 365 stakeholders, both within
22 and outside of the project area. A technical
23 review of the draft environmental assessment study
24 report was also conducted by CNSC experts and
25 federal and provincial authority experts.

1 A total of 31 submissions were
2 received by staff from a First Nation, the public
3 and various stakeholders concerning the draft
4 screening report. Many of those who submitted are
5 here today and will be presenting to the
6 Commission during this hearing. Copies of the
7 submissions are found in annex 4 of the screening
8 report, while responses to the issues raised in
9 these submissions are found in annex 3 of the same
10 report.

11 Many issues, such as failure of
12 the environmental assessment to discuss the need
13 for the project, and alternative sources of energy
14 were outside of the scope of the assessment
15 approved by the Commission in March of this year.

16 Other issues such as aging
17 reactors, solvency of British Energy, security and
18 impacts of terrorists attacks are issues outside
19 of the scope of this environmental assessment
20 under the Canadian Environmental Assessment Act
21 and will be addressed in the context of the
22 licensing hearing scheduled for the beginning of
23 2003, should the Commission accept the
24 recommendations regarding the environmental
25 assessment presented today.

1 Regional study boundaries were
2 clearly defined in the environmental assessment
3 guidelines, and were expended, where needed, in
4 the environmental assessment. No environmental
5 effects were identified beyond the boundaries
6 described in the screening report.

7 Delegation of the environmental
8 study to the proponent was done consistently with
9 Section 17 of the Canadian Environmental
10 Assessment Act.

11 The selection of accidents and
12 malfunctions was consistent with best practice in
13 environmental assessment and fully discussed
14 within the environmental assessment. The
15 assumption that the project is not likely to
16 adversely affect the lake whitefish population was
17 challenged in one submission. CNSC staff provided
18 a detailed response, which is included in annex 3
19 to the screening report. As a result of its
20 public consultation and the draft screening
21 report, CNSC staff did not identify any new issues
22 that warranted modification to the conclusions
23 reached in the report.

24 Based on the findings in the
25 screening report, CNSC staff concluded that the

1 project, taking into account the appropriate
2 mitigation measures, is not likely to cause
3 significant adverse environmental effects. CNSC
4 staff also conclude that the environmental
5 assessment has identified the likelihood and
6 significance of the adverse effects with
7 reasonable certainty. Furthermore, CNSC staff
8 conclude that public concerns expressed to date
9 about the project do not warrant referring the
10 project to the Minister of the Environment for
11 review by a mediator or a panel.

12 CNSC staff recommends that the
13 Commission accept the conclusions of the screening
14 report, that is that the project, taking into
15 account the appropriate mitigation measures, will
16 not cause significant adverse environmental
17 effects. CNSC staff also recommend that the
18 Commission accept the conclusion that public
19 concerns expressed about the projects have been
20 addressed in the assessment and do not warrant
21 referring the project to the Minister of the
22 Environment for review by a mediator or panel.

23 CNSC staff further recommends that
24 the Commission determine a course of action
25 consistent with paragraph 20(1)(a) of the Canadian

1 Environmental Assessment Act, that is to proceed
2 to an assessment of the licence application under
3 the Nuclear Safety and Control Act.

4 This concludes staff's
5 presentation. Staff are available to answer any
6 questions by the Commission. Thank you.

7 THE CHAIRPERSON: Before I open
8 the floor for questions, I would like to note for
9 the record that the Members of the Commission have
10 received, in advance, the environmental assessment
11 screening report, all the submissions, including
12 the environmental assessment study report and
13 appendices and has had an opportunity to review
14 these documents and to put before them for their
15 consideration at this hearing.

16 So all the documents have been
17 received and reviewed by the Commission Members.

18 With that, I would like to open
19 the floor for questions from the Commission
20 Members to the CNSC staff.

21 Dr. Giroux, would you like to
22 start?

23 MEMBER GIROUX: Referring to the
24 document that we have been given, going to pages 6
25 and 7, you are discussing the effect of a release

1 of tritium into Lake Huron and indicating that in
2 Port Elgin there would be a certain concentration
3 in terms of becquerel per litre. But the question
4 is that you state that the doses to members of the
5 public resulting from this release will be
6 acceptably small fractions of the regulatory limit
7 of one milliSievert per year.

8 Then in the next paragraph, you
9 mention that the dose would be much less than the
10 CNSC's annual dose of 3 per cent of 1 milliSievert
11 per year. I would like you to clarify the
12 distinction between the regulatory limit and the
13 CNSC's annual dose and how they relate to the
14 design basis for the operations.

15 MR. DOUGLAS: I would like to ask
16 Patsy Thompson to please answer that question.

17 DR. THOMPSON: Good morning. For
18 the record, my name is Patsy Thompson. I am
19 Director of the Environmental Protection and Audit
20 Division at the CNSC.

21 The reference on pages 6 and 7 of
22 the screening report both refer to the regulatory
23 public dose limit of 1 milliSievert. It is
24 probably a poor choice of words, but it is
25 essentially the same regulatory limit that we are

1 referring to. The Canadian water quality
2 guideline for drinking water is 7,000 becquerel
3 per litre. That is for an annual daily
4 consumption. An annual daily consumption of 7,000
5 becquerel per litre would result in a small
6 fraction of the public dose limit. Hence, having
7 18,000 becquerels per litre for a short period
8 would also be well below the public dose limit, 3
9 per cent essentially of the public dose limit.

10 MEMBER GIROUX: That is the
11 interpretation, 3 per cent of the annual limit
12 would be the result of the concentration in Port
13 Elgin. I am sorry, I did not read that from
14 there. Thank you, that is the explanation.

15 A second question. Do we have
16 somebody from Environment Canada here in the room?
17 I would refer to page 11 of the document again,
18 where the staff state that some issues raised by
19 Environment Canada are still outstanding. I would
20 like to hear what is the present status of these
21 issues? Have they been resolved or what is the
22 expectation that they will be resolved? If you
23 could also state what were the objections from
24 Environment Canada?

25 MR. RIVERIN: The issues that were

1 under concern was the hydrazine, and that one was
2 resolved to the satisfaction of Environment
3 Canada. The second issue was direct wind impact
4 on the facilities, and that was also answered to
5 the satisfaction of Environment Canada in a
6 conference call with them at the end of October,
7 supplemented by a letter to them.

8 MEMBER GIROUX: So it is resolved.
9 What has been the resolution? Acceptance on their
10 part, that the EA was satisfactory?

11 MR. RIVERIN: They accepted the
12 information we provided in terms that the level --
13 there was no impact of straight winds -- that the
14 impact of straight winds had been considered in
15 the assessment.

16 THE CHAIRPERSON: Just for the
17 record, for people who are reading the
18 transcripts, I would like to note that we are
19 referring to CMD document 02-H26, which was
20 information and recommendation of the CNSC staff,
21 for those who are following the transcripts.

22 Mr. Graham.

23 MEMBER GRAHAM: As a follow-up to
24 that same CMD 02-H26, on page 11, down in the
25 third paragraph:

1 "Letters including full
2 documentation were sent to
3 the Chiefs of the two First
4 Nations identified within the
5 regional study area inviting
6 their participation and
7 offering to meet with
8 them..."

9 Could you take me through the
10 steps or the process of how the documentation was
11 presented and explained and worked with through
12 the First Nations?

13 MR. RIVERIN: A number of notices
14 were provided to the First Nations about the
15 environmental assessment starting in June 2001,
16 advising them of all of the activities and
17 information available.

18 With regard to the draft screening
19 report, a letter was specifically sent to each of
20 the chiefs, inviting them to comment on the
21 screening report, providing them with a copy of
22 the screening report, the environmental assessment
23 study report and offering to them the possibility
24 to meet and explain the process, the
25 documentation, which was presented to them.

1 A follow-up was done to ensure
2 that they had received it and there was no further
3 communication after that.

4 MEMBER GRAHAM: The notice was
5 sent in June 2001. That was just done through
6 mail or hand delivered or how was that done?

7 MR. RIVERIN: Most communications
8 were done through mail, all notices, newsletters,
9 except for one meeting with one of the First
10 Nations, which was done by Bruce Power in November
11 of 2001.

12 MEMBER GRAHAM: So then, the draft
13 screening report was completed and sent to them
14 for comment. Was it just again mailed or was
15 there a person-to-person follow-up on the draft
16 screening report?

17 MR. RIVERIN: It was sent by
18 courier and there was a phone follow-up to ensure
19 that they had received the documentation.

20 MEMBER GRAHAM: The next step then
21 was the follow-up. You said one First Nation did
22 follow up and one did not? I am not clear on
23 that.

24 MR. RIVERIN: Both First Nations
25 were called to ensure that they had received the

1 information. No First Nation invited us to go and
2 make a presentation to them on the process or the
3 information. One First Nation did provide
4 comments on the screening report.

5 MEMBER GRAHAM: That is it for
6 now. I have a series of other questions, but in
7 fairness, go around.

8 THE CHAIRPERSON: Dr. Dosman.

9 MEMBER DOSMAN: Madam Chair, this
10 refers to CMD 02-H26. Just a follow-up on the
11 question of hydrazine. I wonder if the staff
12 might be willing to describe with reference to
13 page 8 the circumstances under which an accidental
14 spill might occur in the process of operating the
15 facility?

16 MR. DOUGLAS: I will ask Dr.
17 Thompson to respond to that question.

18 DR. THOMPSON: The scenario looked
19 at an accidental spill of hydrazine in the cooling
20 condenser water discharge, essentially calculating
21 from the volume of hydrazine spills and the
22 discharge channel the volume of water in the
23 discharge channel. We essentially calculated a
24 maximum concentration of hydrazine, which was 3.5
25 milligrams per litre. Then with continuous

1 discharge, this concentration gets diluted after a
2 short time period as the water moves out of the
3 discharge channels. But it is essentially a
4 direct spill into the discharge channel.

5 THE CHAIRPERSON: Continuing, Dr.
6 Dosman.

7 MEMBER DOSMAN: On the same page,
8 I wonder if the Commission staff might spell out
9 what the effects would be on water fowl if there
10 was such a discharge.

11 DR. THOMPSON: I will ask Dr.
12 Steve Mihok to respond to this question.

13 DR. MIHOK: I am Steve Mihok, one
14 of the technical specialists with Radiation
15 Protection and Environmental Compliance Division.

16 We looked at them phenomenon,
17 essentially in more detail. Essentially what we
18 have found using established ecological research
19 or ecological risk assessment methods is that
20 water fowl considered to be valued ecosystem
21 components, such as bald eagles and cormorants and
22 so on, would have some potential. So they would
23 be at risk based on the relatively limited
24 toxicity information that we have. So a hazard
25 quotient calculated, for example, for these two

1 species from this risk would be in the order of
2 one or slightly higher than one.

3 But, again, this hazard quotient
4 depends on a safety factor of about 1,000, an
5 extrapolation from toxicity data for a rodent
6 essentially.

7 Again, the actual risk is very
8 difficult to predict. It would be very low in
9 qualitative terms in terms of the fact that the
10 hydrazine spill would only reach these sorts of
11 maximum concentrations for hours. The hydrazine
12 itself would degrade in the aquatic environment
13 within seven days. The area affected would only
14 be about 40 to 60 hectares.

15 THE CHAIRPERSON: Ms MacLachlan.

16 MEMBER MacLACHLAN: I just have a
17 preliminary question that will help me determine
18 to whom the question should be addressed.

19 In the screening report,
20 Appendices 2 and 3 have a column for responses.
21 Who prepared those responses? Were those
22 responses prepared by Bruce Power or by CNSC?

23 MR. RIVERIN: The responses were
24 prepared by CNSC staff.

25 MEMBER MacLACHLAN: Thank you.

1 Then one of the questions that I have is: There
2 seems to me to be a bit of an inconsistency
3 between Appendix 2, the response provided to
4 comment 7.3, and that is contained on page 10 of
5 23, and Appendix 3, page 23.

6 I am getting at here the
7 materials, then, the submissions received
8 indicated that there was some controversy
9 associated with the treatment of information in
10 the WINGS study by Bruce Power. In Appendix 2,
11 the statement is made that:

12 "Information from the
13 Whitefish Interactions with
14 Nuclear Generating Stations
15 (WINGS) study was considered
16 in preparing the EA Study
17 Report."

18 And examples were provided.

19 Then in Appendix 3, page 23, the
20 WINGS study is cited, but the statement is made
21 that:

22 "The full report of the WINGS
23 studies was not available at
24 the time of preparation of
25 the report."

1 I assume that is the environmental
2 assessment report prepared by Bruce Power. It
3 goes on:

4 "The information that was
5 available at the time that
6 the Bruce A Restart EA
7 Technical Support Document
8 was being prepared was marked
9 'do not cite'. However, the
10 conclusions reached in the EA
11 are not inconsistent with the
12 preliminary findings of the
13 WINGS study."

14 Perhaps, if that information was
15 prepared by CNSC we could get clarification on the
16 inclusion of information from the WINGS study by
17 CNSC staff for preparation of the screening
18 report, and then I guess I would like to flag that
19 same question for Bruce Power in its final
20 assessment of environmental impact on various sub-
21 species of whitefish.

22 MR. DOUGLAS: I will ask Dr.
23 Thompson to reply, please.

24 DR. THOMPSON: The technical work
25 for the environmental assessment took place over

1 several months. When the work essentially was
2 initiated, the draft reports or preliminary
3 reports from the WINGS project were made available
4 with a mention of "do not cite." The information
5 was, therefore, not included specifically in the
6 technical support documents or in the EA report.

7 However, there is a CNSC staff
8 member, Dr. Glen Bird, who was a technical
9 reviewer on the WINGS project. When information
10 was included or the assessment was done, knowledge
11 of lake whitefish that comes from those reports
12 was essentially used to assess the technical
13 validity of the information in the EA technical
14 report. So although we did not cite specifically
15 the WINGS report, our knowledge of the content of
16 the WINGS report in terms of new information on
17 lake whitefish was used to determine whether the
18 technical information that was in the EA report
19 made sense and was accurate in terms of our
20 ability to predict environmental impacts on lake
21 whitefish.

22 THE CHAIRPERSON: Dr. McDill.

23 MEMBER McDILL: Thank you. My
24 question is for page 6, the increased emissions of
25 boiler chemicals in blowdown/steam discharges four

1 to six times a year.

2 Are there other industrial sites
3 in the site study area which would also be
4 releasing hydrazine, particularly hydrazine, or
5 oral morpholine at various times during the year?

6 MR. DOUGLAS: Dr. Thompson will
7 respond.

8 DR. THOMPSON: Essentially when we
9 did the assessment, hydrazine is released by
10 nuclear facilities in the conditions that are
11 described in the environmental assessment report.

12 The only other site that could
13 potentially release hydrazine is the Bruce B
14 station. Other industries outside of the Bruce
15 nuclear power plant and site do not use or release
16 hydrazine as far as we know.

17 MEMBER McDILL: If the other Bruce
18 plant were releasing, would it be releasing at the
19 same time or would they be staggered releases? My
20 concern is would there be enough in a multiple
21 release to affect, I don't know, particularly in
22 the spring, nesting water fowl or lambing or
23 something of that nature?

24 DR. THOMPSON: Essentially with
25 the modelling that was done from releases, it is

1 very unlikely that we would have measurable
2 concentrations of hydrazine in the air a very
3 short distance away from the station. The
4 predictions are essentially that within a small
5 area, those concentrations would not be measurable
6 and it is, therefore, very unlikely that people
7 outside of the area or animals, farm animals,
8 would be affected by hydrazine releases from the
9 operations on the Bruce site, not just from Bruce
10 A.

11 MEMBER McDILL: Thank you.

12 THE CHAIRPERSON: If I could just
13 ask a supplementary, I think Dr. McDill referred
14 to other possible boiler chemicals at the same
15 time. Is there any further information that you
16 would like to provide as well as hydrazine?

17 DR. THOMPSON: Essentially when
18 those types of assessments are done, we will
19 consider the possibility of additive effects from
20 chemicals when they have the same type of effect
21 on the human body or on animals and plants. In
22 this case, since the releases of all chemicals
23 were at concentrations that were lower than
24 concentrations that could affect health, the
25 potential of having additive effects from several

1 chemicals is also not significant and not likely.

2 THE CHAIRPERSON: Dr. Barnes.

3 MEMBER BARNES: To the hydrazine,
4 beyond the impact on vegetation and animals, could
5 you just again comment, during these brief times
6 when there is a release, on the potential damage
7 to workers on the plant in the immediate vicinity.

8 MR. DOUGLAS: Dr. Thompson on this
9 point.

10 DR. THOMPSON: I will ask Dr.
11 Steve Mihok to respond to the question.

12 DR. MIHOK: I think I can answer
13 that maybe there is a bit of confusion over the
14 different issues with hydrazine. The particular
15 scenario with the hydrazine spill was again a
16 spill right into the discharge channel and effects
17 on the aquatic environment.

18 The issues dealing with aerial
19 dispersion of hydrazine are a little bit
20 different. So a spill of hydrazine into the air
21 again does not approach any toxicity benchmarks
22 for animals or humans.

23 The other issue is the issue of
24 chronic emissions of hydrazine during normal
25 operations with I guess blowdown of steam and so

1 on. In that case, the same benchmarks are used
2 for analyzing effects on the public as are used
3 for analyzing the effects on workers. There are
4 no sort of standard benchmarks for these purposes.
5 There are just a number of suggested guidelines.

6 In all cases, all the different
7 scenarios that were modeled, the risk quotients
8 again were all less than 1, just approaching 1 in
9 some cases.

10 MEMBER BARNES: I am referring to
11 your comments. I am at the atmospheric release,
12 not the spills into the discharge channel. This
13 is on page 6, where you point out that the
14 releases were negligible, with the single
15 exception of hydrazine, which was predicted to be
16 60 per cent of the criteria, and so on.

17 You then go on to point out that
18 it is difficult to implement mitigating procedures
19 for it, but nevertheless, this is released four to
20 six times a year and the same thought occurred to
21 me, this is also of course happening in Bruce B.
22 So again, if I can try and pose the question, if
23 this is happening more or less on a monthly basis
24 between Bruce A and Bruce B, are there efforts
25 during the times of the release to minimize the

1 potential effects on the workers in the plants?

2 DR. THOMPSON: The modelling of
3 hydrazine concentrations essentially resulted in
4 concentrations on site where workers can
5 potentially be exposed resulted from
6 concentrations of hydrazine in the air that are
7 well below guidelines that have been promulgated
8 for protection of workers.

9 For example, the guidelines that
10 we have been able to obtain from various sources
11 vary from 3 to 13,000, and the concentrations in
12 air are predicted to be below 3. So in any case,
13 even if there was an overlap in releases from both
14 Bruce A and Bruce B, the concentrations would
15 still be below the guidelines, essentially from a
16 very conservative guideline of 3 to one that is
17 13,000. That is still well below concentrations
18 that could have acute effects on health.

19 MEMBER BARNES: A different
20 question. As you indicate on page 58 of the
21 screening report, the EA guidelines require the
22 proponent to provide a preliminary design and
23 implementation for the follow-up program. Some
24 details are given in Tables 10.1 and 10.2. These
25 tend to be rather specific requirements and don't

1 really convey an indication, if you like, of the
2 organization of the follow-up program. There was
3 a comment made that this would involve a number of
4 stakeholders, including First Nations and so on.

5 Could you add a little bit more
6 information about the nature of this follow-up
7 program, not the specifics given in Table 10.1,
8 for example, where it would address specific
9 issues of surface water resources, but how
10 different stakeholders will be involved in this
11 whole process.

12 DR. THOMPSON: The follow-up
13 program has essentially been described in general
14 terms, as you say, to link with predicted effects
15 or potential effects and to verify the
16 conclusions.

17 The process normally followed to
18 develop the technical documentation to support the
19 follow-up program is essentially a review of the
20 available methodology to conduct the various
21 program elements. During the course of the
22 consultation on the EA documentation, several
23 technical reviewers from federal or provincial
24 departments, as well as First Nations and public
25 stakeholders made comments on items or how the

1 follow-up program should be designed.

2 Appendices 2 and 3 have
3 essentially captured those comments on what would
4 be or should be included in the follow-up program.
5 The next step would be to go through this
6 information, identify the persons who have made
7 those comments, suggestions on the follow-up
8 program and have their input in designing the
9 technical aspects of the follow-up program to make
10 sure that concerns of groups are being addressed
11 in the follow-up program.

12 Once the details have been
13 developed, then CNSC staff review the technical
14 aspects of the follow-up program to make sure that
15 they are acceptable, and then the accepted follow-
16 up program becomes a licence condition. But
17 essentially the stakeholders who have identified
18 an interest in the follow-up program will have a
19 chance to input on the technical details.

20 MEMBER BARNES: Since I am on that
21 particular table, on page 62 of that same table,
22 the last item on there "Cultural Heritage and
23 Aboriginals," item number 2: "Description:
24 Conduct boat counts of fishes using the discharge
25 channel," I think we will doubtless come back to

1 this issue a little later on, but does CNSC staff
2 have a view whether there should be any fishing
3 allowed in the discharge channel or DFO,
4 Environment Canada?

5 MR. BLYTH: It is staff's view
6 that for security reasons there should be no
7 fishing in the discharge channel.

8 MEMBER BARNES: If that is the
9 view, why would you seemingly here recommend --
10 so, the purpose here of the boat count is to
11 establish to what extent there is fishing. Is
12 that right?

13 MR. BLYTH: That is correct.

14 MEMBER BARNES: If your view was
15 that there should be no fishing, what is the
16 appropriate means to effect that?

17 MR. BLYTH: The long-term solution
18 would be to implement a marine exclusion area.
19 That is not in place at this time.

20 MEMBER BARNES: Would that apply
21 to other nuclear plants in the great lakes?

22 MR. BLYTH: Yes, it would.

23 MEMBER BARNES: Is that process
24 underway at this stage?

25 MR. BLYTH: Yes. CNSC security

1 staff are actively pursuing this issue.

2 MEMBER BARNES: How long would you
3 anticipate before that was formulated into a
4 regulation?

5 MR. BLYTH: I am sorry, I don't
6 have that information, but I will get that
7 information for you before the end of the meeting.

8 MEMBER BARNES: An estimate would
9 do, but if you want to get more precise later,
10 that is fine too.

11 MR. BLYTH: An estimate is that it
12 will be difficult to realize this. So in the
13 order of a year or two would not surprise me in
14 the least.

15 THE CHAIRPERSON: Round 2 of
16 questions, Mr. Graham.

17 MEMBER GRAHAM: Just a follow-up
18 on Dr. Barnes' question.

19 The restriction of a no-fish zone
20 around nuclear facilities, is it done strictly for
21 security or for health?

22 MR. BLYTH: I would suggest it is
23 done primarily for security, but quite frankly,
24 currents are quite high in discharge channels and
25 for individual safety, we would much prefer that

1 fishermen did not go into that area.

2 MEMBER GRAHAM: Second question,
3 then, in the models, and there is a lot of
4 reading, but was there a model done of an
5 accidental release of tritium or hydrazine or so
6 on to migratory fish, and I don't mean migratory
7 that migrate around the lake and so on, that if
8 there was an accident, first of all, you could
9 find the extent of the contamination of the fish
10 and, secondly, there is a commercial fishery in
11 Lake Huron, how that would relate to closing a
12 commercial fishery in a zone and so on. Was there
13 a model done on that?

14 MR. DOUGLAS: I will ask Dr.
15 Thompson to respond, please.

16 DR. THOMPSON: The assessment of
17 postulated accidents and malfunctions included,
18 for the release of tritium, which is essentially
19 referred to on page 6 of the CMD 02-H26, included
20 consideration of human health, essentially impacts
21 on drinking water from the Port Elgin area, but
22 also looking at potential impacts on fish that
23 would be exposed to tritium concentrations as the
24 tritium moves out of the discharge channel.

25 The concentrations of tritium

1 would be lower than concentrations that would
2 result in a dose that would essentially have
3 health impacts on fish. So with those types of
4 spills, either of hydrazine or of tritium,
5 concentrations would not be such that they would
6 result in harm to fish.

7 MEMBER GRAHAM: But there was no
8 model done on if there was a spill, how you would
9 get a commercial fishery closed down and in what
10 zones or anything else you would close a
11 commercial fishery for a certain period of time,
12 is there?

13 DR. THOMPSON: The modelling that
14 was done essentially takes the release into the
15 discharge channel and models concentrations and
16 where essentially the plume will go to. So we
17 have a very good idea of how the concentrations
18 will migrate along the coast and out from the
19 Bruce A station.

20 Essentially, because the
21 assessment under accidental conditions showed that
22 this would not result in significant impacts on
23 the fish themselves and would not result in
24 concentrations of radionuclides or toxic
25 substances in the fish flesh so that they would

1 become a human health hazard, then there would be
2 no need to close down fisheries.

3 This would only be done in cases
4 where fish would be contaminated by substances
5 that if people would eat the fish they would get
6 contamination. This would not happen in cases of
7 accidents or malfunctions at the Bruce site.

8 MEMBER GRAHAM: Thank you. One
9 other question. I would like to come back to the
10 First Nations process. My other question that I
11 wanted to ask that I omitted in the first round of
12 questioning was: Was there a separate process or
13 was the same process for all parties involved set
14 up? Was there a separate process or a different
15 process set up in consultation with the First
16 Nations, different than the generic process or was
17 it just strictly a generic process of consultation
18 for all parties?

19 MR. RIVERIN: The only difference
20 was a direct letter being addressed to the chiefs
21 with the information being provided to them
22 instead of a notice from staff, as was sent to
23 everybody else, and then offered to meet with them
24 at their discretion to explain the process, the
25 documentation.

1 THE CHAIRPERSON: Dr. Dosman.

2 MEMBER DOSMAN: For CNSC staff, I
3 would like to come back to the issue of hydrazine
4 and morpholine. Might I ask exactly what it is
5 that these two substances do to the birds if the
6 birds are contaminated with the substances?

7 DR. THOMPSON: I will ask Dr.
8 Steve Mihok to respond to that question.

9 DR. MIHOK: There is a quite
10 detailed review by the Agency for Toxic Substances
11 and Disease Registry in the United States from
12 1997 on all of the different toxicity benchmarks
13 for animals and for humans and so on.
14 Unfortunately, there is virtually no information
15 for birds, so it would be a matter of speculating
16 on what effects might occur.

17 Again, depending on the levels of
18 hydrazine, these effects would range from acute
19 toxicity to the liver to cancer effects to
20 whatever.

21 But for the actual scenarios that
22 we are looking at here, again, it is a very large
23 extrapolation in terms of predicting what might
24 actually happen to a bald eagle or a cormorant.
25 Again, the extrapolation includes this safety

1 factor of 1,000. If I can just look it up quickly
2 for you here, that assumption is based on a lethal
3 concentration that kills 50 per cent of a rodent,
4 a mouse or a rat, at a single intake of hydrazine.

5 The levels that we are looking at
6 that might have an impact on water fowl are
7 actually 1,000 times lower than this particular
8 observation point, which is one of the few sort of
9 acute intake data points for animals.

10 MEMBER DOSMAN: I might ask
11 another question of CNSC staff. On the top of
12 page 5 it indicates, just going to clarification,
13 that each of the 22 projects systems were examined
14 for nine environmental components. To my
15 calculation, that would result in a total of 198
16 potential interactions, whereas the report
17 identified 153 potential interactions. I am just
18 wondering if CNSC staff might explain that
19 circumstance.

20 MR. RIVERIN: The interactions
21 between the project systems and the components of
22 the environment are described in Table 9.1 of the
23 screening report. The total of the interactions
24 in that table are 153.

25 MEMBER DOSMAN: I take it that the

1 reason there is not 198 is because not all of the
2 potential environmental components apply to all of
3 the 22 projects systems.

4 MR. RIVERIN: That is correct.

5 THE CHAIRPERSON: Ms MacLachlan.

6 MEMBER MacLACHLAN: Thank you. I
7 would like to come back to the screening report
8 again and the material that is in Schedules 2 and
9 3.

10 In the responses that are provided
11 in Schedule 2, where an issue or a comment that
12 has come forward from the public has raised an
13 issue that requires further action or requires the
14 issue to be addressed in the Bruce Power EA study,
15 that has been acknowledged.

16 I realize that the environmental
17 assessment documentation is an iterative process,
18 but where it has been agreed that further
19 information must be addressed in the study report,
20 where are we with respect to the status of
21 documentation? Has the EA study report been
22 amended and, therefore, the screening report
23 prepared by CNSC has accommodated that additional
24 information? Do you understand the nature of my
25 question? It is a sequencing, a temporal issue.

1 MR. RIVERIN: Annex 2 refers to
2 the technical review of the draft environmental
3 assessment study report by government agencies,
4 provincially and federally, and CNSC staff as
5 required in the guidelines.

6 These comments were provided to
7 Bruce Power and where the draft environmental
8 assessment study report needed to be revised, it
9 was revised. The document in front of you is the
10 final environmental assessment study report on
11 which staff prepared its draft screening report.

12 The draft screening report in
13 question was sent for public comments, a six-week
14 public comment period on August 15, which closed
15 on September 30. Appendix 3 of the screening
16 report provides a response to all comments
17 received and how these comments were addressed or
18 dispositioned. In front of you is the final
19 screening report from CNSC staff.

20 MEMBER MacLACHLAN: Thank you.
21 Then the second question: There seemed to be,
22 with respect to the modifications that Bruce Power
23 undertook to make to Bruce A that are planned to
24 be restarted, those modifications, the concern
25 that was raised was that there was no commitment

1 to making those modifications or plan with an
2 implementation schedule.

3 The response from CNSC was that
4 that would be a requirement. Can you confirm for
5 the record that, when the licensing application
6 comes before the Commission, those will be
7 recommendation, that those modifications will be
8 recommendations that will have a more concrete
9 plan associated with them?

10 MR. DOUGLAS: Yes, they will be
11 part of the re-licensing CMD, but won't indicate
12 which ones have been completed at that point when
13 you receive it and which ones will be completed
14 before restart.

15 MEMBER MacLACHLAN: Thank you.

16 THE CHAIRPERSON: Dr. Giroux, do
17 you have further questions?

18 MEMBER GIROUX: No.

19 THE CHAIRPERSON: Ms McDill?

20 MEMBER McDILL: No.

21 THE CHAIRPERSON: Dr. Barnes, do
22 you have any further questions?

23 MEMBER BARNES: I have some on the
24 whole issue of whitefish. Would you prefer to
25 wait until we get to the presentation by the First

1 Nations, which raises this as a major point? It
2 has been discussed by Commission staff.

3 THE CHAIRPERSON: If you have some
4 general questions with regard to the whitefish
5 which you feel the staff should answer now, I
6 believe you should ask those questions at this
7 point.

8 MEMBER BARNES: We will plunge in.
9 I will be overridden if I get too deep into it.

10 I would like to ask the question
11 or get greater clarification as to why the lake
12 whitefish were not selected as a VEC?

13 MR. DOUGLAS: Dr. Thompson will
14 respond.

15 DR. THOMPSON: I will ask Dr. Glen
16 Bird to respond to that question.

17 DR. BIRD: The valued ecosystem
18 component is typically selected as the most
19 sensitive receptor within a group of ecologically
20 similar species, such as deep water species, which
21 would include round and lake whitefish and lake
22 trout that use the near shore habitat for spawning
23 and for nurseries.

24 The valued ecosystem components
25 were selected so that different exposure pathways

1 would be assessed and a diversity of effects would
2 also be assessed.

3 In the historic records, the data
4 on round whitefish showed that it was more
5 abundant than lake whitefish in catches. The
6 round whitefish also used the shoal areas for a
7 nursery. The larvae inhabited this area after
8 spawning. These nursery shoals are located in the
9 open lake, where the cooling waters are
10 discharged.

11 In comparison, the lake whitefish,
12 after it hatches from the spawning shoals, the
13 larvae move up into the water column and then move
14 into the shallow protected waters of embayments.
15 Therefore, the round whitefish is more likely to
16 be exposed to the thermal effects and suffer
17 adverse effects than lake whitefish.

18 Also, the varied ecosystem
19 component approach serves as a surrogate for other
20 similar species. In a sense, the valued ecosystem
21 component of the round whitefish is a generic
22 fish. That is, the round whitefish represents all
23 deep water species that use the near shore or zone
24 for spawning and nursery habitat. Hence, when you
25 look at the potential effects of the Bruce A

1 restart on both round whitefish and lake
2 whitefish, these were considered explicitly by
3 CNSC staff by taking into consideration
4 differences in the biology of these two species.

5 MEMBER BARNES: But the fact that
6 the lake whitefish was perhaps more an important
7 fishery had little to do with your decision to
8 exclude it?

9 DR. THOMPSON: When the decision
10 was made on which species would be representative
11 valued ecosystem components, essentially Bruce
12 Power's team and consultants, as well as CNSC
13 staff, looked at the available information that
14 had been collected on the impacts of the Bruce
15 stations on fish populations.

16 The Ontario Ministry of the
17 Environment issued a certificate of approval for
18 the release of heated waters to Lake Huron, as
19 well as for intake of waters. As a condition of
20 the certificate of approval, at the time Ontario
21 Hydro, OPG, had to conduct studies, essentially to
22 demonstrate that their activities that conform to
23 the certificate of approval were not having
24 significant impacts on fish populations in Lake
25 Huron.

1 Ontario Hydro, at the time, did
2 extensive studies on all fish species that were
3 living close to the Bruce station. They held
4 technical workshops to identify, based on
5 knowledge of potential impacts of the station from
6 the discharge and intake of water, knowledge of
7 which species were found in the area, as well as
8 what data from entrainment and impingement,
9 essentially to identify species that could be
10 affected and developed hypotheses based on that
11 information.

12 They did expensive work in the
13 eighties and nineties to test those hypotheses to
14 determine which fish species would be most likely
15 to be affected. All that information was taken
16 into consideration when the choice of round
17 whitefish was made as a representative of cold
18 water fish that essentially will use this area,
19 essentially because the records identified that
20 this was a lot more affected than lake whitefish.

21 So the primary weight essentially
22 on the choice of the VEC is in terms of ecological
23 significance. The biology of the organism in
24 relation to its potential exposure to the site and
25 because of the information from 20 years of

1 studies that were done, data on round whitefish,
2 this sort of took more importance than the
3 socioeconomic factors, lake whitefish fishery,
4 essentially because the assessment would be more
5 conservative if conducted on round whitefish
6 because they were more directly exposed.

7 MEMBER BARNES: You said that some
8 of your decision making in this area was based on
9 those earlier studies. Was any of the more recent
10 and concurrent work by the WINGS project also
11 taken into account? I recognize that some of
12 their reports are dated in the interval 2001, 2002
13 and ongoing. But at the time you made this
14 decision, in a sense to exclude lake whitefish as
15 a VEC, were CNSC staff fairly familiar with the
16 results coming out of the WINGS project?

17 DR. THOMPSON: I will provide some
18 information and maybe ask Glen Bird to provide
19 more.

20 To my knowledge, when the
21 workshops and the preliminary work to identify the
22 valued ecosystem components was being done, there
23 was little information from the WINGS project. So
24 I believe that at the time, this information
25 wasn't available to feed into the process.

1 The information that became
2 available in the course of the study was
3 essentially used to determine whether we had erred
4 in the choice of the valued ecosystem component
5 and if the additional information coming out of
6 the WINGS project had indicated that lake
7 whitefish were more at risk, then obviously we
8 would have included lake whitefish in the
9 assessment.

10 But the information that was
11 coming out of the WINGS project essentially
12 supported the decision that had been made that
13 round whitefish was a good representative of those
14 types of fish and presented a more conservative
15 assessment end point.

16 DR. BIRD: I was a staff member as
17 part of the advisory group to WINGS. So I was
18 aware of the reports and the data that they had
19 collected and put together in their documentation.
20 Also, the consultant became aware of this
21 information in meetings, but the reports were
22 cited "do not cite" and, for that reason, the
23 consultant did not use the information.

24 However, the data that was
25 generated by the WINGS program was consistent with

1 the data that was used in the environmental
2 assessment. Basically their results showed that
3 lake whitefish were more abundant than round
4 whitefish in the deeper waters and more distant
5 from the Bruce discharges, but closer to the
6 station, round whitefish were more abundant than
7 lake whitefish.

8 The numbers that they had showed
9 in their netting programs were very low, which
10 further supported the assumptions that the use of
11 this area by whitefish is low. Further, the WINGS
12 data did not demonstrate that lake whitefish spawn
13 in the area, but did show that lake whitefish
14 larvae use the nearby bays like Bay du Doré as a
15 nursery. Again, numbers are low.

16 In general, their data do support
17 the approach of the assessment that round
18 whitefish, because of their greater abundance and
19 greater potential to be exposed to thermal
20 effects, would be a better VEC for representing
21 the cold water species such as lake trout, round
22 whitefish and lake whitefish that use the near
23 shores area for spawning and as nursery habitat.

24 THE CHAIRPERSON: Dr. Thompson,
25 for the record, what were the dates of the earlier

1 studies, the Ontario Hydro, OPG? I think you
2 talked about them in sort of a temporal nature but
3 not the dates.

4 DR. THOMPSON: The studies were
5 started essentially around 1978. There was a lot
6 of data accumulated. In 1986, Ontario Hydro at
7 the time held a workshop, brought in scientists
8 active in the Great Lakes and fisheries
9 essentially of the fish that were involved.

10 From that workshop, essentially
11 the workshop was used to identify criteria that
12 made fish populations susceptible to impacts from
13 the Bruce station. So that information
14 essentially, that workshop, led to criteria that
15 were used to identify potentially impacted fish.
16 And then Ontario Hydro continued the work and
17 issued reports to the Ontario Ministry of the
18 Environment in the 1990s. The last one was in
19 1999, essentially summarizing the information,
20 drawing conclusions where conclusions could be
21 drawn, and identifying areas where there was
22 uncertainty in information, for example, on the
23 lakewide populations, local populations.

24 So all this information was
25 presented to the Ontario Ministry of the

1 Environment in 1999 in support of the certificates
2 of approval for Bruce B in that case. But
3 essentially the work from 1978 to about 1999
4 covered populations of fish in Lake Ontario close
5 to the Bruce site.

6 THE CHAIRPERSON: Mr. Graham.

7 MEMBER GRAHAM: I would like to
8 refer to the screening report, issue 23, on page
9 19. There was a couple of things came out in that
10 statement that caused me some concern.

11 First of all, I will read it:

12 "The geology of Bruce A is
13 not ideal. In fact, old
14 topography maps show it as
15 partially built on a lake
16 bottom."

17 It goes on:

18 "This has been evidenced in
19 much higher than normal
20 levels of tritium, 2,000 plus
21 Bq per litre of ground water
22 monitoring wells near the
23 Bruce A site."

24 My first question is: When was
25 that? Is that referring to something back years

1 ago or is that something that has been done
2 recently?

3 DR. THOMPSON: Essentially the
4 work has been done with the use of monitoring
5 wells around the foundation drains around the
6 Bruce station. Measurements of tritium were made
7 in the collected samples. This work was done over
8 the last two or three years. This is recent work
9 essentially where the problem was identified. The
10 CNSC hydrogeologists were involved in reviewing
11 the information and making recommendations on
12 source identification and continued monitoring.
13 So this is quite recent work.

14 MEMBER GRAHAM: There were tritium
15 levels of 2000 plus becquerel per litre in some of
16 their findings?

17 DR. THOMPSON: Yes.

18 MEMBER GRAHAM: The other
19 concerning part I had about that statement that
20 was there was data obtained through the freedom of
21 information.

22 Is this not public knowledge and
23 why would someone or an intervenor have to go
24 through freedom of information or is this
25 something that is for the norm? I would like that

1 explained. To CNSC staff, you see where I am
2 referring to in that item where it says that this
3 information was obtained through freedom of
4 information in the past and has shown tritium
5 levels of up to 600,000 becquerels per litre in
6 the vicinity of sump pumps. That is a pretty
7 strong statement.

8 First of all, I am wondering, is
9 that factual, that the public have to go through
10 freedom of information on that?

11 MR. DOUGLAS: I really don't know.
12 We will have to take it under advisement and get
13 back to you on it. We will have to check it out.

14 THE CHAIRPERSON: Mr. Douglas, can
15 you do that within this time period?

16 MR. DOUGLAS: Yes, I will.

17 THE CHAIRPERSON: Thank you. Are
18 there further questions at this time?

19 What I propose to do is rather
20 than start with the intervenors at this time
21 period, and since we are trying to accommodate a
22 large number of intervenors who will be expecting
23 a 1:30 start, we will take a break at this time.

24 This ends the questioning for the
25 staff on this round. We will return at 1:30

1 sharp. If everyone could be in their seats at
2 1:30. Thank you very much.

3 --- Upon recessing at 12:25 p.m.

4 --- Upon resuming at 1:30 p.m.

5 THE CHAIRPERSON: This is a
6 continuation of the hearing with regards to the
7 matter of the environmental screening report for
8 the return to service of units 3 and 4 of the
9 Bruce Nuclear Generating Station A.

10 Before we start with the
11 interventions, I would like to return to a
12 question that Mr. Graham had asked before lunch.
13 This question was with regards to a comment in the
14 screening report on the requirement by a responder
15 to the report in terms of asking for information
16 through freedom to information, I believe was the
17 wording.

18 Just before we start, I would like
19 to finish that item. I will turn the mike over to
20 Mr. Blyth, please.

21 MR. BLYTH: Thank you very much,
22 Madam President.

23 During the course of the break we
24 tried to locate the access to information request
25 and we are unable to find such a request, which

1 may not be surprising in that this is confidential
2 correspondence.

3 But what I want to add is that
4 whether there was a request or not, it should not
5 have been necessary for a member of the public to
6 go through ATIP to get this type of information.
7 So if CNSC staff in any way delayed or postponed
8 it for that reason, that was highly inappropriate.
9 That is not the way we do our business these days.

10 The information is of interest to
11 the public, should be in the public domain and
12 should have been released immediately on request.
13 If it wasn't, we apologize.

14 MEMBER GRAHAM: Thank you. That
15 is what I wanted to hear on the record, that the
16 public should not have to go through freedom of
17 information or right to information, however it is
18 worded.

19 The wording of this freedom of
20 information may refer, though, to provincial
21 information. But in CNSC's roles or CNSC's
22 procedure, you don't have to go through freedom of
23 information to get that. That is what you are
24 saying?

25 MR. BLYTH: Absolutely not. For

1 information of this nature, it should have been
2 forwarded within a few days.

3 MEMBER GRAHAM: Thank you very
4 much, Madam Chair.

5 THE CHAIRPERSON: We will now move
6 to the interventions. I would like to note for
7 all the intervenors who will be speaking this
8 afternoon, your more detailed written submissions
9 have already been read and will be duly considered
10 by the Commission.

11

12 **02-H26.1 / 02-H26.1A / 02-H26.1B**

13 **Oral presentation by Bruce Power Inc.**

14 THE CHAIRPERSON: I would like now
15 to turn to Bruce Power Inc. for their
16 presentation. This is outlined in CMD documents
17 02-H26.1, 02-H26.1A, 02-H26.1B. I will turn over
18 to Mr. Hawthorne, President and Chief Executive
19 Officer of Bruce Power. Welcome, Mr. Hawthorne.

20 MR. HAWTHORNE: Good afternoon,
21 Madam President, Members of the Commission.

22 For the record, my name is Duncan
23 Hawthorne. I am Bruce Power's Chief Executive
24 Officer. With me today, I have Duncan Moffett,
25 Principal with Golder Associates, and Ron Mottram,

1 Vice-President of Bruce A Restart.

2 Bruce Power is pleased to appear
3 before the Commission to address the environmental
4 assessment for the return to service of units 3
5 and 4 of Bruce Nuclear Generating Station A.

6 You have heard from the CNSC staff
7 how comprehensive our EA process has been, and
8 have received the resulting volumes of information
9 supporting our case.

10 It is not possible in a short
11 verbal presentation to do justice to that
12 extensive documentary support. So we won't
13 attempt to do that. However, we hope to provide
14 the Commission with some context around the
15 submission itself. Our intention here is to
16 provide a high level overview.

17 Bruce Power received a 30-month
18 operational licence in may 2001. The Bruce B
19 licence was for a fully operational, while Bruce A
20 licence was for a shutdown, defuelled facility.
21 We did, however, indicate at the licensing
22 hearings that we were intent on our restart
23 program for two of the laid up units. Therefore,
24 we are before you today as the first formal
25 regulatory step towards that goal.

1 The Commission held a public
2 meeting on March 1, 2002 to set the scope for our
3 submissions in accordance with the requirements of
4 the Canadian Environmental Assessment Act. Upon
5 receipt of this information, we provided all
6 necessary supporting documents.

7 Bruce Power understands that Bruce
8 A restart is a complex program and that today is
9 the first in a set of key milestones. We clearly
10 recognize other regulatory obligations such as the
11 licensing hearings.

12 As part of our case, nine
13 technical support documents and one environmental
14 assessment report were provided.

15 As part of this nuclear plant
16 recovery program, the previous licensee had
17 removed units 1, 3, and 4 from operational service
18 by the spring of 1998. Unit 2 had been laid up in
19 1995. At the time they were laid up, units 3 and
20 4 were known to have operational life and there
21 were no technical issues that factored into the
22 closure of discussion. Bruce Power conducted a
23 Bruce A condition assessment that indicated there
24 were no significant technical impediments to the
25 restart. The assessment also showed no material

1 deterioration had occurred during the period of
2 closure.

3 When combined with the current
4 market demand and the expertise of our personnel,
5 a strong business case was developed for
6 restarting units 3 and 4. When the Bruce A units
7 are restarted, Bruce Power plans to operate the
8 four units at Bruce B and the two units at Bruce A
9 as an integrated six-unit facility.

10 During the period of the Bruce A
11 lay up, Bruce B has continued to operate and a
12 full environmental monitoring and reporting regime
13 has been in place.

14 As the economic engine in our
15 corner of Ontario, the Bruce Power site has a
16 major impact on our community, which suffered a
17 serious economic downturn as a result of the
18 decision to close Bruce A. Conversely, Bruce
19 Power's decision to restart Bruce A has had a
20 considerable positive impact. If you were to
21 visit our community today, you would see new house
22 construction, business expansion and a renewed
23 community spirit. I would be remiss if I didn't
24 add that the impact is not just in our area. The
25 majority of our contract support for Bruce A

1 restart has been obtained from a wide Ontario
2 source base.

3 In addition to immediate economic
4 impacts, the Bruce A project will add a much
5 needed 1500 megawatts of electricity to Ontario's
6 marketplace. This baseload increase will bring
7 supply and demand more into balance and ease the
8 fears of potential power shortages.

9 I would also like to emphasize
10 that the 1500 megawatt we are adding to the grid
11 is clean generation that will offset the use of
12 fossil fuels in Ontario and reduce the emission of
13 greenhouse gases.

14 The increased use of safe,
15 reliable and clean electricity generated by
16 nuclear power will be a major asset to Ontario and
17 Canada, as we strive to address the crucial issue
18 of carbon emission reductions.

19 One of our core values is
20 openness. As part of the Bruce A restart project,
21 we have taken great effort to ensure extensive
22 community stakeholder and government
23 consultations.

24 Bruce Power held 11 open houses in
25 all parts of our regional study area from July 1,

1 2001 to April 2002. Public announcements in local
2 newspapers and on local radio stations were made
3 to ensure the community was well informed of these
4 open houses.

5 Four newsletters discussing the
6 environmental assessment were delivered by postal
7 drop to more than 20,000 area residents. In
8 addition, a series of meetings were held with more
9 than 20 stakeholders and First Nation groups,
10 including the local impact advisory committee, the
11 Ontario Federation of Agriculture and local First
12 Nation bands.

13 All intervenors from the original
14 licensing hearing were given information about the
15 restart project. A toll-free information line was
16 established and the EA studies were posted on our
17 website and deposited in public libraries. Bruce
18 Power responded openly and quickly to any response
19 for more information.

20 We were pleased to appear before
21 the Commission in September for our mid-term
22 licence review of Bruce B. At that time we
23 outlined Bruce Power's environmental policies,
24 including an ISO 14001 registration, and our
25 commitment to use the standard as elements of a

1 framework to improve our overall environmental
2 performance.

3 Situated on the shores of Lake
4 Huron, Bruce Power takes its role as an
5 environmental steward very seriously. More than
6 235 species of plants and more than 300 types of
7 wildlife call our site their home. It is a
8 privilege to live in one of the most beautiful
9 parts of the world, and Bruce Power is ensured to
10 committing that Bruce County remains that way.

11 Our environmental policy is
12 designed to protect native species of plants and
13 wildlife, and the bio diverse habitats that
14 support them. In keeping with our commitment to
15 the environment, Bruce Power has undertaken a
16 comprehensive indepth environmental assessment.
17 We are pleased to have the opportunity to review
18 that process with you.

19 With Bruce Power's intention to
20 refuel and restart the two Bruce A units, we
21 requested an amendment to the existing operating
22 licence. We undertook an assessment of the
23 effects of the project on the environment as
24 required by the Canadian Environmental Assessment
25 Act.

1 In keeping with our commitment to
2 a thorough environmental assessment, Bruce Power
3 recognized that the EA would need to be conducted
4 by an independent, experienced and knowledgeable
5 group of scientists.

6 To ensure this, Bruce Power
7 retained the services of Golder Associates who
8 have conducted numerous national and international
9 environmental assessments and are recognized as
10 one of Canada's foremost authorities. We are very
11 pleased to have had the services available to us,
12 as it has made this process much more
13 comprehensive.

14 As I said in my introduction, we
15 don't intend to review the information that has
16 been provided. I do, however, have at my disposal
17 Duncan Moffett and Ron Mottram to respond to any
18 questions the Commission may have with respect to
19 any outstanding issues.

20 I thank you for your attention.

21 MR. MOFFETT: Madam President and
22 Commission Members, for the record, my name is
23 Duncan Moffett. I am manager of the consultant
24 team carrying out the EA. I welcome the
25 opportunity to present the results of the EA

1 studies that Golder Associates conducted on behalf
2 of Bruce Power.

3 The studies were done using
4 Golder's environmental assessment protocol, which
5 ensured that the EA was conducted to a high
6 standard. The EA is a complete, thorough and
7 forward looking study of the likely effects on the
8 environment of restarting units 3 and 4.

9 Project effects were
10 conservatively assumed to occur for a period of 13
11 years for each of the units, although Bruce Power
12 plans to operate unit three for only eight years.
13 The final EA study reports prepared by Golder
14 Associates addresses all of the scope items
15 identified in the EA guidelines.

16 The EA guidelines include a
17 recommended framework for conducting and
18 documenting the environmental assessment studies.
19 The main steps in this environmental assessment
20 process are shown on this slide and include
21 describing the Bruce A project, describing the
22 existing environment, identifying and assessing
23 likely environmental effects of the project,
24 identifying mitigation measures and describing
25 adverse residual effects, determining the

1 significance of those effects and identifying and
2 assessing likely cumulative effects and the
3 effects of the environment on the project.

4 These technical studies were
5 carried out in parallel with the public and
6 stakeholder consultation program designed to
7 identify issues and concerns which were then
8 addressed in the environmental assessment.

9 The environmental components
10 listed on this slide include all of the physical,
11 bio physical and social features of the
12 environment, most likely to be affected by the
13 project.

14 Each environmental component was
15 divided into sub-components that represent
16 constituent environmental features relevant to the
17 project. For example, the sub-components of the
18 terrestrial environment included: First,
19 vegetation communities and species; second,
20 wildlife habitat; third, wildlife communities and
21 species.

22 The first output from our
23 environmental studies was a series of nine
24 separate technical support documents, each
25 corresponding to one of these components. The

1 technical support documents represent the results
2 of these studies and investigations conducted
3 during the EA and form the basis of the
4 environmental assessment study report.

5 In the next slide, as required by
6 the EA guidelines, valued ecosystem components,
7 VECs, were chosen from members of the wildlife
8 present at the site, organisms living in the lake
9 and vegetation communities.

10 As a focus for the environmental
11 assessment, the valued ecosystem components were
12 selected to represent all other species that might
13 be affected by the project. VECs were initially
14 selected by Golder's technical specialists based
15 on a methodology and criteria approved by the CNSC
16 staff.

17 In addition, as part of the
18 community and stakeholder consultation plan,
19 interviews and a workshop were conducted with key
20 stakeholders to discuss and review the VECs. As a
21 result of this process, the list of VECs was
22 modified, including addition of the bald eagle,
23 for example.

24 When conducting the environmental
25 assessment, if there was a likely effect on an

1 environmental component, the valued ecosystem
2 components identified were used as representatives
3 in assessing the effect. Thus, the assessment
4 included all environmental components and all
5 species but used selected VECs to focus the
6 studies.

7 The next slide shows the approach
8 followed to ensure that all aspects of the Bruce A
9 restart project were described. The approach used
10 was to identify all physical works and activities
11 that make up Bruce A and describe how they could
12 interact with the environmental components.

13 To do this, the station was first
14 divided into five major plant system groups. For
15 example, the nuclear steam supply system. Each of
16 these system groups was then examined to identify
17 individual project works or activities which had
18 the potential to transfer contaminants to the
19 environment. For example, within the nuclear
20 steam supply system, a project work and activity
21 is the condenser cooling water system.

22 This process was done for normal
23 operations and maintenance. And also as a result
24 of malfunctions and accidents. A total of 21
25 project works and activities were identified, in

1 addition to malfunctions and accidents.

2 This slide provides an example of
3 how each of the project works and activities was
4 assessed to identify significant adverse effects.
5 First, each of the works and activities was
6 reviewed by the technical specialists carrying out
7 the EA to determine if it had the potential to
8 interact with any of the environmental components.
9 If an interaction was plausible, it was identified
10 on the EA matrix. For example, as shown in the
11 slide, in the terrestrial environment component,
12 the condenser cooling water system could interact
13 with wildlife habitat and wildlife species, but
14 not with vegetation species and communities.

15 Second, each of the potential
16 interactions was assessed to determine if it was
17 likely to result in a measurable effect on the
18 environment. If a measurable effect is likely, it
19 was described and identified as a square on the
20 matrix. Effects that were not measurable remained
21 as a dot on the matrix and were not considered
22 further.

23 Third, all measurable effects were
24 assessed against established criteria, for
25 example, regulatory standards, to determine those

1 that are adverse. Mitigation measures were
2 applied to all adverse effects and the residual
3 effect determined.

4 Finally, all residual adverse
5 effects were further assessed to determine their
6 significance using an established methodology and
7 criteria.

8 On assessing the effects of the
9 project works and activities on the nine
10 environmental components, a total of 132 effects,
11 plus 21 malfunctions and accidents were
12 identified. These effects were screened to
13 determine if they were measurable and adverse
14 using the process described in the previous slide.
15 There were five residual adverse effects that were
16 advanced for detailed assessment of significance.

17 After indepth assessment, all were
18 deemed as not being significant. A total of 22
19 other projects and activities were identified and
20 considered as potentially creating a cumulative
21 effect with the Bruce A restart project. This
22 included, for example, the Bruce B station.

23 The results of the assessment show
24 that there are no likely cumulative effects of
25 significance as a result of the restart project.

1 The overall conclusion of the environmental
2 assessment is that the project is unlikely to
3 cause any significant environmental effects,
4 taking into account existing and planned
5 mitigation measures.

6 I would now like to turn over to
7 Mr. Ron Mottram, Bruce Power's Vice-President,
8 Bruce A, who will talk about these mitigation
9 projects and the other planned activities that
10 avoid effects on the environment.

11 MR. MOTTRAM: Madam President and
12 Members of the Commission, my name is Ron Mottram,
13 and I am Bruce Power's Vice-President of the Bruce
14 A Restart.

15 Early on in the screening process
16 of the project effects, existing mitigation
17 measures were credited to eliminate the potential
18 environmental effects. For example, the increase
19 in traffic flow to Bruce A could result in an
20 increase in deer/vehicle collisions. The solar
21 power electrified fencing that had been installed
22 several years ago along the interconnecting road
23 serves to mitigate these collisions.

24 Other effects were eliminated by
25 identifying mitigating measures that could be put

1 into place prior to the restart. Therefore, a
2 number of projects and activities were spawned at
3 the start of the project to address some
4 identified effects.

5 The projects that have been
6 completed include foundation sump tritium,
7 lubricating oil storage tanks secondary
8 containment, paint and sand blast shop secondary
9 containment.

10 Projects that are still in
11 progress but will be completed shortly are: Fuel
12 oil storage tank piping and secondary containment,
13 hydrogen storage improvements on the turbine room
14 and sump house sumps. Two ongoing activities in
15 progress are: Chlorination to control zebra
16 mussels and a storm water management plan.

17 The EA guidelines require a
18 preliminary design and implementation plan for a
19 follow-up program. The purpose of this program is
20 to provide continuing vigilance to demonstrate
21 there are no changes to the environment as the
22 result of effects from the project. In order to
23 support this, monitoring and sampling of
24 environmental characteristics has been carried out
25 to establish a baseline so that predictive future

1 effects of the project on the environment can be
2 verified. This data collection has continued
3 after the completion of the environmental
4 assessment and includes storm water monitoring,
5 ground water sampling, lake bacteria counts and
6 temperature measurements.

7 In addition, continuing studies
8 are in progress to investigate methods of lowering
9 discharge temperature and reduce thermal plume
10 size.

11 The recommended follow-up program
12 includes whitefish population investigation
13 methods, fish entrainment and impingement
14 assessment, deer mortality on site, noise
15 monitoring and water fowl use of intake.

16 Scope of the follow-up program
17 will be defined by the CNSC in consulting with
18 stakeholders, First Nations, Bruce Power and the
19 scientific community. Bruce Power will conduct
20 this follow-up program and report its results to
21 the CNSC.

22 MR. HAWTHORNE: Madam President,
23 Members of the Commission, that completes our
24 brief presentation. We are happy to respond to
25 any questions.

1 THE CHAIRPERSON: Thank you very
2 much, Mr. Hawthorne. Now the floor is open to
3 questions from the Commission Members.

4 Dr. Giroux.

5 MEMBER GIROUX: I have two or
6 three questions which are related to clarification
7 of minor points.

8 I will refer to the screening
9 report that we have, this version, and there is a
10 comment which has been raised also by an
11 intervenor, the Great Lakes United. You mention
12 on page 3 at the bottom of the page, that the
13 planned operational life is eight years for unit 3
14 and 13 years for unit 4.

15 Then on page 13, again at the
16 bottom of the page, you say that the two reactors
17 were shutdown permanently in 2015, which appears
18 to be longer for Bruce 3 than the eight years
19 which has been mentioned. This comes up again on
20 page 25, where you say that the reactors will be
21 permanently taken out of service in 2022.

22 There might be nothing wrong, but
23 I am just reading these things and asking you to
24 clarify exactly what are the expected times.

25 MR. HAWTHORNE: You are absolutely

1 correct with the final comment. The 2022 is a
2 typing mistake and it should say 2015. The reason
3 2015 is quoted as a bounding activity it is
4 clearly the last remaining operational unit. We
5 do acknowledge that one unit finishes its life
6 after eight years but the longest straw in a box,
7 if you like, is the unit which runs 13 years, and
8 at that point, 2015 we would be deemed to be
9 permanently shutdown.

10 MEMBER GIROUX: Did you use 2015
11 for both units for the assessment as a
12 conservative measure?

13 MR. HAWTHORNE: Yes.

14 MEMBER GIROUX: Thank you. That
15 answers my question.

16 On page 21, and, again, this might
17 be minor or major, depending on your answer, when
18 you talk about nuclear accidents, you mention that
19 there is a release of radioactivity. Then you
20 say:

21 "All of the accidents either
22 have a probability of
23 occurrence of greater than
24 one in a million or result in
25 the release..."

1 I would have thought it would be
2 smaller than one in a million. Is that an
3 editorial error?

4 THE CHAIRPERSON: Perhaps I should
5 just clarify that the screening report -- correct
6 me if I am wrong, Mr. Blyth -- is actually written
7 by the staff.

8 MR. DOUGLAS: What we are trying
9 to say there is the accident could happen, if it
10 did happen, more frequently. The probability was
11 greater than one in a million. In other words,
12 there was a greater chance of them happening than
13 one in a million.

14 MEMBER GIROUX: You are standing
15 by what is written there?

16 MR. DOUGLAS: Yes.

17 MEMBER GIROUX: I can't follow
18 you. It could be a probability of one, then. One
19 is greater than one in a million. Don't you mean
20 an interval or recurrence of greater than one in a
21 million?

22 MR. DOUGLAS: Yes, the frequency
23 with which it would happen would be less than one
24 in a million.

25 MEMBER GIROUX: The probability.

1 MR. DOUGLAS: Or the probability,
2 yes.

3 MEMBER GIROUX: Of occurring if
4 you say it can be more than one in a million, it
5 can be one?

6 MR. DOUGLAS: Yes, but there was a
7 certain defined set of accidents with the
8 probability shown in the reports.

9 MEMBER GIROUX: I don't understand
10 the statement.

11 THE CHAIRPERSON: Mr. Blyth, would
12 you care to clarify this, please?

13 MR. BLYTH: What we are trying to
14 say is that all accidents with a probability of
15 occurring greater than or equal to one in a
16 million were considered in the assessment. It was
17 out of that set of accidents that we chose the
18 limiting cases.

19 We did not go beyond that, for
20 example, and look at accidents that had a
21 predicted frequency of one in 10 million years,
22 for example. They were excluded.

23 MEMBER GIROUX: One in 10 million
24 is smaller than one in a million.

25 MR. BLYTH: Yes, i.e. they were

1 less likely to occur and were so unlikely that
2 they were not considered as part of the
3 environmental assessment.

4 MEMBER GIROUX: Thank you. I
5 think enough is said. We understand the same
6 thing.

7 Turning now to page 45, last
8 question for the first round -- and actually there
9 are two questions together -- you are discussing
10 here the effects of radioactivity on animals and
11 you state in the middle of the page that for the
12 EPRC7 accident, there might be fatalities for
13 white-tailed deer and wild turkeys. The question
14 is: In addition to fatalities, could there be
15 genetic effects?

16 THE CHAIRPERSON: That is a
17 question to the licensee.

18 MR. MOFFETT: The criteria for
19 determining whether the effect was fatal is an
20 UNSCEAR criteria, which includes both fatality and
21 genetic damage which would affect the population
22 viability. So the answer is both.

23 MEMBER GIROUX: And the related
24 question in the next paragraph, you mention as
25 mitigation that you might have ultimate non-

1 contaminated food sources for the deer and the
2 turkeys. My question is: Is there an emergency
3 plan? Is there a reserve of food which will be
4 established and what is the time line? If you
5 have an accident, how soon would you envision
6 supplying alternate food sources to these animals
7 and how would you go about this?

8 MR. MOFFETT: There is not a plan
9 because one cannot store hay, for example,
10 indefinitely. However, the resultant dose, the
11 acute dose to animals, deer, is a result of
12 browsing over a period of a year, over a long
13 period of time. So there is adequate time in a
14 matter of weeks for an initial response which
15 would avoid, if the animals could be given
16 alternate food within several weeks of the
17 accident, and we are talking about animals right
18 on the Bruce Power site, if they could be given
19 alternate food within a matter of weeks of the
20 accident, the fatalities and genetic risk would be
21 removed.

22 MEMBER GIROUX: I understand the
23 answer, but would that be part of the emergency
24 plan for Bruce Power?

25 MR. HAWTHORNE: No, it isn't part

1 of the emergency plan.

2 MEMBER GIROUX: Thank you.

3 THE CHAIRPERSON: Dr. Barnes.

4 MEMBER BARNES: I find the
5 document quite formidable in its size and elegant
6 in some ways, but in a sense disappointing in
7 others. I realize the limitations of time and
8 maybe data in some cases.

9 Sometimes on what I would call
10 limited data, one then draws conclusions that
11 threats are sort of negligible. I will come to a
12 point I am trying to make in a few minutes.

13 As an example of the sort of
14 disappointment of the kind of data that is used in
15 here to make a point, I would refer, since Dr.
16 Giroux has mentioned the deer, on page 516 of the
17 bit assessment, it is pointed out that in the year
18 2000 a deer carcass was found at the Bruce Power
19 site. Tissue samples were taken for analysis. On
20 the basis of that one sample, one then makes
21 calculation that if local people ate an entire
22 diet more or less of deer, they would have
23 negligible effects on the people.

24 There is nothing perhaps wrong in
25 that, except one might be disappointed that, in a

1 sense, statistically you are trying to make a
2 point out of one carcass that happened to be found
3 on the site. One doesn't know presumably how long
4 that particular deer was on the site. I am not
5 sure about the fencing, if it has to live its
6 entire life on the site or whether it could have
7 hopped a fence or been on the site for just a few
8 days before it died.

9 There is no comparison with other
10 deer that are more distant from the plant, so that
11 you can do a comparative analysis, things of this
12 type.

13 Perhaps a more likely scenario is
14 the matter of diet, particularly of First Nations
15 groups that might consume large amounts of
16 whitefish and, in that same section, page 517, you
17 then do analyses of average concentrations of
18 radionuclides in whitefish.

19 Round whitefish has been one of
20 the VECs that you choose. But if I dig through
21 the document to really try to find real hard
22 information on the ecology, et cetera, of
23 whitefish, I find it is rather limited again. So
24 I make two points. One, we know, as I referred to
25 earlier this morning, we know well, and we will

1 come to it later on, that there has been in
2 parallel and supported by Bruce Power, the study
3 at Guelph University, the so-called WINGS
4 document, and this was again being done. Your
5 document is dated August 2002. There have been a
6 number of publications from WINGS prior to that,
7 and yet in the section on whitefish, it is
8 repeated a couple of times, there are references
9 but there is no reference, again, to the WINGS
10 document, the latest study basically trying to
11 understand whitefish in specifically Lake Huron.

12 The first question is: Why
13 wouldn't you have incorporated some of the WINGS
14 document? As I understand it, Golders was well
15 informed of this.

16 MR. MOFFETT: Golder biologists
17 visited the WINGS group, got copies of WINGS
18 documents during the preparation of the
19 environmental assessment and considered and used
20 the WINGS data in doing the assessment. For
21 example, the WINGS report says that round
22 whitefish are more common close to Bruce A than
23 lake whitefish. That was our understanding based
24 on our historical review of information and based
25 on our own observations. So we used the WINGS

1 information that we received.

2 We did receive copies of the WINGS
3 documents, however, which were marked "Draft, do
4 not cite." So although we used the information,
5 we considered the information where it was helpful
6 to us in doing the assessment, we respected the
7 requests of the WINGS group in not citing
8 documents which were a draft and not finalized at
9 the times we were finalized our report.

10 MEMBER BARNES: In the case of
11 whitefish, do you have any information on the
12 relative size of white fish harvests, say, during
13 the last decade; that is, to measure the effects
14 around the plant and so in or in that general
15 shoreline of Lake Huron during the time at which,
16 in the early nineties, Bruce A was operating and
17 then a period of now several years when it has
18 been shutdown.

19 In a sense, we are looking forward
20 here in this document, but there is certainly an
21 opportunity to have looked at the impact when
22 Bruce A was not operating. Do you have any data
23 there?

24 MR. MOFFETT: In terms of the size
25 of the fishery, the catch, et cetera, my

1 understanding is Ontario Ministry of Natural
2 Resources document that I recall looking at says
3 that the size of the fish, the size of the
4 population has increased over the past ten years.

5 MEMBER BARNES: The past ten
6 years, probably at least the first part of that
7 would include the time when Bruce A was operating.

8 What you are saying is that the
9 effects are negligible here, but since this
10 interval when Bruce A was not involved in
11 affecting Lake Huron, one should be able to see
12 the effects of, in a sense, shutting down Bruce A
13 on some of these biotic components. In this case,
14 I am just using lake whitefish as an example.

15 MR. MOFFETT: Dr. Barnes, I guess
16 the answer is the effect of Bruce A on whitefish
17 or other fish species, for example, is manifested
18 in several ways. You mentioned the radioactive
19 pathway through the fish for people eating; the
20 number of the whitefish; the success in spawning;
21 the effect on the thermal plume; the effect in
22 terms of fishing pressures.

23 As part of the assessment, we
24 looked at all of those components, and based on
25 the information that was available, supplemented

1 by field investigations, and the conclusion we
2 came to was there is no likely adverse effect on
3 any of those aspects of the fishery as a result of
4 the restart, and that bore in mind the evidence of
5 information and the analysis of fish samples
6 collected during periods when Bruce A and Bruce B
7 were operating and when only Bruce B was
8 operating.

9 MEMBER BARNES: Would you say in
10 general that the kind of data that you have --

11 THE CHAIRPERSON: I don't mean to
12 override you, Dr. Barnes, but I think that Dr.
13 Thompson may have some data that would help answer
14 this question, and then I will certainly go back
15 to you.

16 Dr. Thompson.

17 DR. THOMPSON: Through the course
18 of reviewing the technical documents in support of
19 the environmental assessment, we have consulted
20 with fisheries biologists that work for the
21 Ontario Ministry of Natural Resources and have
22 acquired data on lake whitefish capture from
23 commercial fishery.

24 Essentially between 1974 and 1996,
25 the period during which both Bruce A and Bruce B

1 were operating, the harvest went up from
2 essentially half a million kilograms in 1974 to 4
3 million kilograms in 1996, essentially an eight-
4 fold increase over the period 1974 to 1996, when
5 both Bruce A and Bruce B were operating.

6 MEMBER BARNES: But nothing to
7 compare in the last few years when Bruce A has not
8 been operating?

9 DR. THOMPSON: We also have
10 additional information. The most recent
11 information was published in August 2002 and
12 includes information up to 1996. I will ask my
13 colleague, Dr. Glen Bird, since he has got more
14 recent information, to talk to about it.

15 DR. BIRD: The data that Patsy
16 presented were for the Lake Huron proper. I do
17 not have more recent catch data for that
18 particular area, but I have some data provided
19 from the Ministry of Natural Resources for the
20 fisheries management area closer to the Bruce site
21 northeastern Lake Huron.

22 The data from 1995 to 2001 show
23 that catches in that particular area have been
24 ranging from about 376,000 kilograms up to about
25 500,000 kilograms of whitefish per year.

1 MEMBER BARNES: Maybe I will make
2 one point and then be quiet for a while.

3 What I find frustrating about
4 reading these documents, of which Golders have put
5 a huge amount of time and effort and doubtless
6 Bruce Power has invested a fair amount of
7 financial resources and a lot of the intervenors
8 have spent a lot of time and we spent a lot of
9 time reading it, nevertheless, it does frustrate
10 me that we find in too many cases a situation
11 where we don't have adequate baseline information
12 against which to make these sensible observations.

13 In this case, just taking the case
14 of whitefish here, whether it be round or lake,
15 there is a certain amount of information and the
16 bottom line, I think, for the CNSC staff is that
17 the impact of starting Bruce A will probably have
18 negligible effects. Certainly, I think that is
19 the bottom line in the Golder document.

20 If one reads in more detail and
21 looks at the WINGS document that we will look at
22 in perhaps a little more detail to come or if we
23 look at the letter that is written to the WINGS
24 staff by Glen Bird, who has been giving us some
25 information here, it is in the CNSC document,

1 there isn't a particular page, but it is the June
2 21, 2002 letter, Mr. Bird certainly acknowledges a
3 need for a good deal of additional study and
4 information to get, in a sense, some better handle
5 on it.

6 If I look at the follow-up
7 program, which again I referred to this before as
8 a requirement, and look under the aquatic
9 environment, one of the objectives there is to
10 "develop a sampling methodology for implementation
11 after restart."

12 It seems to me that right now
13 there should be an opportunity to develop a much
14 more detailed database when Bruce A is not
15 operating and then compare it, if one wants to,
16 within a few years after Bruce A has started up
17 and really get to understand more quantitatively
18 the effects that have happened.

19 I suspect if we go to approve
20 this, basically the science to understand the
21 current baseline on so many of these components
22 will not be done in time. Bruce A will start and
23 we will not have the opportunity to draw really
24 quantitative assessments about the impact that we
25 are here today to try to assess.

1 I find some frustration in the
2 data and the fact that when it is brought to this
3 point, it is probably too late to get a sensible
4 baseline and, in some ways, I would think if some
5 of the investment had been made over the last
6 couple of years, to get much more detailed
7 baseline information, we would then really be able
8 to assess the impact of start up.

9 MR. MOFFETT: You raise a lot of
10 methodological and scientific issues.

11 My first answer would be an
12 environmental assessment is not an empirical
13 research study. An environmental assessment, in
14 general, and this environmental assessment in
15 particular, as outlined in the EA guidelines
16 issued by the CNSC, says that qualitative, as well
17 as quantitative, measures may be used. It says
18 further in determining significance that the
19 professional judgment of the technical specialist
20 is permitted.

21 This is because, I believe, an
22 environmental assessment is forward looking and
23 predictive, makes assessments not in terms of the
24 definitive scientific terms that are in the WINGS
25 study, for example, but rather, in a way that

1 assesses that effects are likely, which is the
2 spirit and practice of the Canadian Environmental
3 Assessment Act.

4 There certainly is uncertainty in
5 data collected, but any uncertainty is reduced in
6 the areas where effects are likely, and that
7 uncertainty is further reduced by designing a
8 follow-up program which confirms the predictions
9 or contradicts the predictions of the
10 environmental assessment. In designing the
11 follow-up program with respect to whitefish, for
12 example, either round or lake whitefish, most
13 certainly the techniques and methods that have
14 been developed and tried as part of the three-year
15 WINGS program would be used in the follow-up for
16 the EA program.

17 MR. HAWTHORNE: Perhaps, Madam
18 President, if I could just expand on that.

19 We, Bruce Power, have continued to
20 support the WINGS project. We are a partner in
21 that project. We have confirmed our intention to
22 continue to work on the recommendations of this
23 project as part of the follow-up and as part of
24 the partnership relationship through that.

25 We also, however, acknowledge that

1 this study has to actually cover the entire lake
2 and, as such, there are many people who could and
3 should participate alongside us. Bruce Power have
4 certainly given clear steer that we are prepared
5 to help to make that happen, to the extent that it
6 is possible and within our control so to do.

7 In addition to that, there is
8 reference in some of the documents to dietary
9 studies, because clearly one of the other key
10 issues that we should be considering, is the
11 eating habits of the First Nations. I have in
12 front of me that document which I only received a
13 few days ago, but it very clearly talks about the
14 amount of fish consumed by First Nations. It is a
15 study that involved a similar group of scientific
16 experts to look at it and, obviously, we have to
17 factor those dietary habits also into our overall
18 view of likely effects. I think we have continued
19 to do that and our follow-up program will continue
20 to explore all of these impacts.

21 THE CHAIRPERSON: Would the CNSC
22 staff like to comment on Dr. Barnes' question?

23 DR. THOMPSON: Maybe two things to
24 address. One is the baseline information that is
25 available in terms of concentrations of

1 radionuclides and environmental compartments on
2 the Bruce site and in the region around Bruce.

3 The Ontario Power Generation has
4 been conducting a radiological environmental
5 monitoring program for a number of years. We
6 have, on a number of occasions, evaluated,
7 accepted, audited this program. Ontario Power
8 Generation made considerable improvements to the
9 program.

10 Essentially, the baseline that was
11 used to conduct the assessment is the information
12 collected through this environmental monitoring
13 program. When we look at the information
14 necessary to make assessments in terms of the
15 description of the existing environment, the level
16 of detail that we require to be able to make a
17 decision is usually in line with the expected
18 significance of the environmental effect.

19 In areas of operational history,
20 experience has shown us that releases are very
21 low, doses to members of the public, doses to
22 biota, on site and off site, have been
23 consistently low when both stations were
24 operating. The level of confidence in the
25 existing data to be able to make a decision is

1 quite good.

2 Where we would need more extensive
3 baseline would be in situations where we expect
4 releases to be potentially toxic and have little
5 information with which to do the assessment. That
6 situation did not arise during the environmental
7 assessment.

8 The issue with the lake wide
9 populations of fish is an issue that most people
10 who work and do research with fisheries in the
11 Great Lakes have wrestled with for a long time.
12 It is an issue that needs to be addressed by both
13 sort of academic research and that is being
14 conducted at two universities in Ontario. The
15 Ontario Ministry of Natural Resources staff are
16 also quite active in trying to address these
17 issues. So they go well beyond what would be
18 expected from a licensee or a licence applicant
19 for the licence for a power reactor because
20 essentially the impacts are more related to
21 fisheries activities through other significant
22 changes that have occurred in the Great Lakes over
23 the last 30 years, like arrival of non-indigenous
24 species.

25 So the issue is complex and can't

1 be addressed by Ontario Power Generation or Bruce
2 Power in this case. But certainly the baseline
3 information to be able to do the assessment with
4 the likelihood of the releases and the conditions
5 at the Bruce site were felt to be sufficient.
6 There is recognition that to be able to
7 essentially judge Bruce A when it restarts, the
8 intention is to conduct additional baseline
9 information before the restart.

10 THE CHAIRPERSON: Ms MacLachlan.

11 MEMBER MacLACHLAN: Thank you very
12 much. This is a question for Bruce Power. I
13 would like to take a look at one of the ten ex-
14 plant release categories and that is EPRC7. I am
15 referring to tab 5 in the environmental assessment
16 report.

17 EPRC7 includes release of fission
18 products from fuel in an accident situation. You
19 discuss in there the release of fission products
20 from the core into containment and conclude that
21 the magnitude of such an accident, the effects of
22 an accident would be small.

23 I have a couple of different
24 questions.

25 One, in the absence of application

1 of the conservative assumptions that are discussed
2 in this chapter, and I am talking about page 5-118
3 on, what is it that would be released in that
4 scenario, how much of each substance would be
5 released, and what would be the effect of those
6 releases? I ask that question because you go on
7 and you apply more conservative assumptions to
8 arrive at the conclusion that the effect from such
9 an accident would not have a significant impact.

10 I don't have a sense of the
11 effects prior to application of the more
12 conservative assumptions. Perhaps you could
13 address the rationale for applying more
14 conservative assumptions and the magnitude and
15 detail of those assumptions that were applied.

16 MR. MOTTRAM: The methodology that
17 is carried out to establish these basically
18 nominal groups of accidents is a fairly well-
19 established one and identifies between 1 and 10
20 and defines what they mean.

21 Basically what happens then, the
22 model of the whole of the accident scenarios, of
23 which many thousands exist, are grouped together
24 to produce an outcome. In a sense, that gives you
25 the risk of the outcome taking place of many of

1 the scenarios put together. That derives a risk.
2 The extension from that risk, then, says if that
3 was to happen, there would be a dose that would
4 occur as a result of fission products and the
5 like.

6 But to create that into a dose
7 number as distinct from a risk implies that all of
8 them are equally likely to occur. The
9 conservative assumption would be that the risk of
10 any one of them occurring is significantly lower
11 than the group which caused the total risk to be
12 generated.

13 So the conservative assumption is
14 to do with the actual probability of any one event
15 taking place is significantly lower than the group
16 of those risks put together. That grouping is the
17 way in which nominally you look at the total risk
18 in probabilistic risk terms.

19 MEMBER MacLACHLAN: I understand
20 the methodology. Thank you very much.

21 How does the theory from that
22 methodology apply to the particular release
23 category EPRC7, which was one of the ones that was
24 selected for taking that particular category
25 further for additional review and what are the

1 elements? There are radionuclides, iodine and
2 cesium.

3 MR. MOTTRAM: You are correct,
4 those isotopes are the things that typically
5 occurred in fission product release.

6 The methodology which says that if
7 you look at the dose term that could exist from,
8 in the particular case of EPRC7 in a release with
9 by-passing containment, things like transport pump
10 seals, defines what that would be. It looks at
11 the total dose as a result of the sum of all the
12 isotopes. In point of fact, the methodology that
13 was used looked at all the accident scenarios, not
14 just the two that were contained in the
15 environmental assessment report.

16 Back to the question that was
17 asked before, there is a binding value to the
18 probability less than ten to the minus 6 used as
19 typically in established criteria. So you look at
20 what would happen within the constraints of that
21 particular accident scenario, and they are
22 different through the list, and then what that
23 dose would contribute if that were to happen and
24 different scenarios have a different dose to them.
25 Consequently, you have the extrapolation from risk

1 to predicted dose and the argument to back
2 conservatism arises by the different predicted
3 dose terms for that accident scenario.

4 MEMBER MacLACHLAN: But I don't
5 come away from this with an understanding of the
6 impacts and the effects of a worse case scenario,
7 which is what I think the public really wants to
8 know. What is the worst case scenario?

9 I understand defence and depth
10 through control, cooling containment. But what is
11 the worst case scenario without the application of
12 the risk probability scenarios and what is the
13 effect? Can you give that to us in plain
14 language?

15 MR. HAWTHORNE: Let me have a go.
16 If you were to look at the screening report, Table
17 7.3, which actually quotes these as the bounding
18 accidents, these are the worse type of events.
19 Then it talks about the dose would be reduced. It
20 gives you a view of the milliSievert dose in that
21 event and it talks about how the dose reduction
22 could be achieved.

23 So effectively, I believe the
24 question you ask is what would be the maximum
25 consequence event, if you like, within this.

1 MEMBER MacLACHLAN: Right.

2 MR. HAWTHORNE: Looking at all of
3 the faults and arrows that we have, worst cause
4 would be a severe core damage which bypasses some
5 of the mitigating factors, and that is EPRC7. In
6 that case, you can see the dose effects from the
7 table. That is the bounding case.

8 MEMBER MacLACHLAN: I am not sure
9 I understand the table. I mean, 590
10 milliSieverts, that is for an individual dose.

11 MR. HAWTHORNE: Maximum individual
12 dose to an individual would be 590 milliSieverts
13 in that event.

14 MEMBER MacLACHLAN: And over what
15 period of time, what frequency?

16 MR. HAWTHORNE: Over a year. This
17 is just standard terminology that we use. That is
18 the maximum dose over a year.

19 MEMBER MacLACHLAN: Would that be
20 fatal? I would like to continue this right on to
21 the logical conclusion without being too
22 oversimplistic. I understand this is just one of
23 the release categories.

24 MR. MOTTRAM: The basic premise is
25 that you have a design basis on a plant and you

1 design it within certain criteria. That has
2 obviously been accepted by the design authorities.

3 Then more recently there has been
4 a probabilistic basis to establish if a whole
5 sequence of events went wrong, what would be the
6 probability of that taking place and is that
7 within a safety limit that you believe is the
8 case. You do many, many runs of many processes to
9 establish what the risk of that taking place is so
10 you end up with a number.

11 In essence, Bruce Power's position
12 is it has a set of safety limits and goals which
13 it has to meet in all scenarios and make sure the
14 plant can do so.

15 Indeed, in Bruce A we have done a
16 number of improvements to make sure that when it
17 returns to service it can meet all our safety
18 goals.

19 The extrapolation into
20 environmental assessment space, then, says so if
21 it was to happen, can we get some feel for what
22 the sort of averaging implication of that might
23 be? You cannot obviously say that if the person
24 is standing next to the break when it took place,
25 he wouldn't be more damaged than a person at the

1 fence because that is unrealistic. So you try to
2 produce this average picture that says the average
3 impact to a set of individuals looks like this
4 sort of dose with this probability.

5 That is what this methodology
6 does. It doesn't actually have a meaning. There
7 is no number that says if it was to take place,
8 everybody in this room, if we were all in the
9 power station would end up with that specific
10 dose. But the average predicted dose and the
11 probability would be this sort of number.

12 That is what this tries to do it.
13 It is an attempt to show, obviously in not very
14 simple form, what the implication would be. The
15 important thing is that the plant is designed to
16 operate to a defined risk level, and that meets
17 all our requirements. That is really what
18 happened.

19 THE CHAIRPERSON: Ms MacLachlan, I
20 think the staff might also want to provide some
21 advice on this.

22 MR. BLYTH: To put the dose in
23 context, this would be a dose to a member of the
24 public so at some reasonable distance from the
25 site. It would be based on a mixture of

1 radioisotopes, things that were inhaled like noble
2 gases, things that might deposit on the ground
3 like iodine and cesiums and then either uptake or
4 shine over the period of time.

5 To put it in perspective, this is
6 absolutely not a fatal dose to a member of the
7 public. This is a long way from being a fatal
8 dose.

9 The more realistic value, the 250
10 milliSieverts, is typically the licensing limit
11 that we use in our deterministic analysis for what
12 we call dual failure events, large accident plus a
13 failure of a special safety system such as
14 containment, such as emergency core cooling.

15 Those limits have a large margin
16 of safety. So you are not looking at fatalities
17 here.

18 What you would be looking at down
19 the road almost certainly is increased incidents
20 of certain types of cancers, thyroid, whatever.
21 But certainly, there is not fatalities prompt or
22 in the near term.

23 In fact, the event that is
24 producing this 590 milliSieverts in a conservative
25 calculation, and that calculation should be

1 conservative, is one that is beyond our normal
2 design basis. It is not one that we would have
3 considered in the licensing of Bruce A plant
4 because it is as a result of a large number of
5 failures that we don't postulate.

6 But it is determined from a
7 probabilistic risk assessment, a systematic
8 analysis of a large number of failures and then
9 ones with similar consequences are grouped.
10 Overall frequency is calculated for everything in
11 that group, and this one dose is intended to
12 characterize the worst consequences of that group.

13 So, yes, it is severe. There
14 would be an offsite response, emergency measures
15 would call for sheltering almost certainly,
16 possibility of some evacuation, but certainly no
17 fatalities and probably even in the passage of
18 time, no detectible fatalities that could be
19 attributed to the event.

20 THE CHAIRPERSON: Dr. Dosman.

21 MEMBER DOSMAN: Madam Chair, I
22 wonder if I might ask Bruce Power just to provide
23 a little more background on the sequence of
24 events. As recently as 1998, these units are
25 taken out of production. Less than two years

1 later, the decision is made to put them back into
2 production. It seems somewhat inconsistent.

3 Apparently there were some
4 deficiencies. The document outlines certain
5 measures that have been made to correct
6 deficiencies. But I wonder if Bruce Power could
7 just expound a little more clearly on this
8 sequence of events.

9 MR. HAWTHORNE: I guess the simple
10 message is that Bruce Power has been a licensee of
11 this site since May 2001. Prior to that, Ontario
12 Hydro and then Ontario Power Generation were the
13 owner/operator of 20 operating nuclear plants. As
14 a result of operational concerns they had about
15 their performance in general, they took a decision
16 to lay up eight of the reactors, four at Pickering
17 and three at Bruce, one was already down.

18 The logic was that they had
19 sufficient operational management challenges that
20 they felt they had to focus their improvement
21 efforts on 12 units. So the decision taken was to
22 redeploy some staff from Bruce A to help support
23 those improvement initiatives.

24 Frankly, I am speaking on behalf
25 of Ontario Power Generation, but the logic was

1 that there was a feeling that more progress could
2 be made in a shorter period of time by reducing
3 the magnitude of the challenge. In doing so, they
4 took a decision to put the Bruce A units into a
5 laid up state with the intention that had this
6 transaction not taken place which created Bruce
7 Power, that they would improve the performance of
8 the 12 units and then on a stage basis return
9 those units to service.

10 Basically there was no technical
11 concern about units 3 or 4 when they were taken
12 out of service. It was more to do with a
13 management operational challenge. That being the
14 case, our logic was coming in as a new operator
15 with a more confident view, if you like, of what
16 could be done on this site. One of the things
17 that we sought to do was to create the right
18 operational standards that could see the unit
19 return to service. That is really what we have
20 been focusing on.

21 The reality is the previous
22 operator took the plants out of service for their
23 own management operational decisions. A new owner
24 comes in and has a different view of how they
25 might operate the facility, and that allows them

1 to look optimistically at the restart.

2 THE CHAIRPERSON: Dr. McDill.

3 MEMBER McDILL: Thank you. My
4 question is to Mr. Moffett. A number of the
5 intervenors were concerned about the lack of
6 scientific method. You have, I think, addressed
7 that partly when you said assessments are not in
8 terms of definitive scientific -- I didn't write
9 the rest of the quote down. I think I have it
10 more or less correct.

11 MR. MOFFETT: I hope I didn't say
12 that environmental assessments aren't scientific.

13 MEMBER McDILL: No.

14 MR. MOFFETT: They most certainly
15 are scientific, but do not use the same
16 methodology as an empirical research study would,
17 for example.

18 MEMBER McDILL: Agreed. You also
19 said that the judgement of technical staff was
20 allowed within the EA guidelines which you were
21 working with.

22 MR. MOFFETT: The EA guidelines
23 make several references to the use of qualitative,
24 as well as quantitative, methods. Bearing in mind
25 that this reactor has operated for 20 years, has a

1 20-year operational experience, also the EA
2 guidelines say that the professional judgment of
3 the technical specialists carrying out the
4 assessment can be relied upon in making decisions
5 or in arriving at decisions with respect to the
6 significance of effect within a defined
7 methodology and framework.

8 MEMBER McDILL: Within that
9 defined methodology and framework, can you tell me
10 roughly -- this is going to be again a rough
11 number -- I know the report went out to various
12 government departments and agencies, but in your
13 assessment, how many qualified technical staff
14 were involved or whose opinions were sought?

15 MR. MOFFETT: In conducting the
16 environmental assessment, Golder and our
17 associated consulting firms of the order of 30 to
18 40 scientists from the various disciplines,
19 scientists and engineers in the various
20 disciplines were involved.

21 Throughout the environmental
22 assessment, probably of the order of six to ten
23 scientists and engineers from Bruce Power were
24 involved in the assessment.

25 Throughout the environmental

1 assessment, in our consultation activities, we
2 conducted interviews with people, including
3 naturalists, people with local information on the
4 ecology, et cetera, Walpole Island Heritage
5 Centre. So another handful, eight, ten, people
6 with specialized knowledge.

7 Our draft environmental assessment
8 report was extensively reviewed by five Federal
9 Government departments: Health Canada, Natural
10 Resources Canada, Fisheries and Oceans, Indian and
11 Northern Affairs, and Department of the
12 Environment. I would say something like another
13 20 or two dozen technical expert in those
14 departments. That federal review process was also
15 observed by officers from the Canadian
16 Environmental Assessment Agency.

17 Then I guess in addition to that
18 is the CNSC staff review of our documentation.

19 MEMBER McDILL: Thank you.

20 THE CHAIRPERSON: Would the CNSC
21 staff like to venture an estimate of the number of
22 staff experts to complete that discussion?

23 MR. RIVERIN: Probably five or six
24 at least in the environmental protection area and
25 then the people on the reactor side.

1 MR. BLYTH: The environmental
2 protection group would have been supported by
3 people at Bruce site almost on a continuous basis,
4 plus scientists and engineers familiar with safety
5 analysis, risk assessment, systems, radiation
6 protection. So I would say equivalent effort,
7 probably double that group. So call it ten.

8 MEMBER McDILL: Are you satisfied,
9 Mr. Moffett, that within a scientific framework,
10 the scientific work is correct and adequate?

11 MR. MOFFETT: Yes.

12 THE CHAIRPERSON: Mr. Graham.

13 MEMBER GRAHAM: A question to
14 Bruce people with regard to sampling of ground
15 water. In the Table 10.1 on page 59 and go on to
16 page 62, you talk about sampling five ground wells
17 for the full site perimeters and you are going to
18 do it quarterly, May, September and December. The
19 second one is quarterly in April, September and
20 December.

21 In the report in another place it
22 talked about 15 shallow wells and 20 deep water
23 wells. Then in another place in the report you
24 talk about the five wells will be sampled after
25 the restart and then at a less frequent basis.

1 Sampling wells, first of all my
2 question is how many wells are there that will be
3 tested and are being tested on an ongoing basis
4 and how frequent will that be?

5 MR. MOFFETT: The Bruce Power site
6 is a large site with several operating facilities.
7 Each of those operating facilities has a network
8 of ground water wells which reflect the ground
9 water conditions. For example, wells around Bruce
10 B reflect the situation there. As you know, the
11 Bruce B reactors are several kilometres away from
12 Bruce A.

13 In doing the environmental
14 assessment, we looked at all the available
15 information from my guess would be there would be
16 of the order of 50 to 80 wells on the site. We
17 looked at that information to determine which were
18 useful for the environmental assessment purposes.
19 Out of that, we zeroed in on five multi-level
20 wells in proximity to the Bruce A power station.

21 Those wells were sampled
22 extensively for a full suite of parameters, both
23 radiological and non-radiological, and the follow-
24 up program, which happened between the time we
25 completed the environmental assessment and today

1 has continued to develop the baseline database on
2 those five wells and the associated sumps at the
3 Bruce A station, which reflect the ground water
4 characteristics at the station.

5 I am sorry, the simple answer is
6 five multi-level wells allow us to have the
7 snapshot of the ground water relevant to Bruce A.

8 MEMBER GRAHAM: The 15 and the 20,
9 then, were on the whole site of A and B, and you
10 have five to get a snapshot on A. But in the
11 report, and I was reading on page 62, it said once
12 you get that done, after both units are restarted,
13 reduce frequency thereafter, it said that the five
14 sampling ground wells would be sampling after the
15 unit started, then they would be reduced to
16 frequency.

17 Can you tell me what the frequency
18 will be in those five wells, testing after the
19 restart?

20 MR. MOFFETT: In practice, once a
21 baseline has been established, a good four season
22 baseline has been established, unless there is
23 some event which might represent a threat to the
24 ground water, something of the order of once every
25 three or every five years, a repeat of a full

1 annual cycle for sampling on that sort of
2 frequency.

3 So on a three- to five-year cycle
4 and four times for the four seasons.

5 MEMBER GRAHAM: That would be
6 those five wells? It wouldn't be five new ones.
7 It would be the five existing once the baseline
8 was established. Is that right?

9 MR. MOFFETT: Yes.

10 MEMBER GRAHAM: Just another
11 thing, more or less of a technical nature. It
12 said quarterly, but it said May, September and
13 December which is really not quarterly. It is
14 really once every four months but you have done
15 them both in 2002 on two different aspects of
16 dates. So I guess it would work out quarterly.

17 What you are saying is you are
18 establishing a baseline, and you will go to from
19 there. Just a question I have of CNSC staff. Do
20 they agree with that methodology of doing the
21 testing?

22 DR. THOMPSON: Yes.

23 THE CHAIRPERSON: My first
24 question is asking Bruce for more details about
25 the survey that was done of attitudes around the

1 Kincardine area, et cetera. Could you talk a
2 little bit about the methodology?

3 I would also note for the staff,
4 unless I have missed something, that the details
5 of the survey do not appear in the screening
6 report but it is in the assessment report. I just
7 wanted to know a little bit more about there was a
8 methodology discussed in there, but how did you
9 establish that methodology and will that be a
10 baseline as well for future work in that area?

11 MR. MOFFETT: In carrying out
12 environmental assessments at nuclear facilities,
13 we have developed this methodology of doing public
14 attitude research, not opinion polling but public
15 attitude research which attempts to determine how
16 people see their community, how people feel about
17 the most important issues within their community,
18 how they feel about the presence of nuclear power
19 stations or nuclear facilities in their community,
20 and whether they would anticipate any change in
21 their behaviour as a result of the project, the
22 restart of Bruce A. To do that, we sampled in
23 this case just over 700 people. We sampled them
24 within the host municipality, the Municipality of
25 Kincardine and in Bruce County. We asked a series

1 of questions.

2 Out of that, we can get a profile
3 of the community and where people are with respect
4 to their attitudes. That profile we then compare
5 with the information we get in open houses, where
6 we are talking to people, information we get in
7 actual one-on-one interviews we do. For example,
8 important series of questions for us involve
9 identifying what are the top most important issues
10 in the community. Before we start the
11 environmental assessment, we like to know where
12 the restart project fits in that profile.

13 We found, for example, in this
14 public attitude survey, we found that issues
15 relating to ground water, policing, schools, and
16 we found the presence of the nuclear station was
17 well down on the list. We then asked people to
18 tell us what is their current use, for example, of
19 recreational facilities and determine whether they
20 anticipate that use would change as a result of
21 the restart, a neighbouring park, recreational
22 areas for fishing, et cetera. We asked if the
23 plan to restart it, would that change your
24 attitude. Again, that is calibrated against the
25 comments we hear in interviews and in open houses.

1 By the public attitude research,
2 we establish the status, if you will, of the
3 attitudes within the community at the date it was
4 done.

5 And then to answer your second
6 question, most certainly that represents a useful
7 benchmark for some point in future whether or not
8 people's attitudes towards the existence of the
9 facility in that community have changed or not
10 changed.

11 I just must add that we found, as
12 a result of that survey, only a very small
13 percentage have concerns or ranked the nuclear
14 power station or, specifically, the restart of
15 Bruce A as a significant concern.

16 THE CHAIRPERSON: I think we could
17 have a great debate on attitudes, opinions and
18 underlying values, but I will leave that right
19 now. I won't get into that.

20 Round two. Dr. Giroux, any
21 questions?

22 MEMBER GIROUX: No.

23 THE CHAIRPERSON: Ms MacLachlan.

24 MEMBER MacLACHLAN: Thank you. I
25 am wondering, I am sure you can, tell me about the

1 process by which the heavy water becomes
2 tritiated. It hasn't been clear in my reading
3 that there is absolutely no contact between the
4 uranium in the fuel rods and the deuterium used as
5 a moderator within the calandria.

6 Can you explain that process to me
7 and also identify what is it that affects the
8 concentration within the deuterium of the
9 tritiated water. That is clearly one of the
10 releases to the environment, so that is of
11 concern.

12 MR. MOTTRAM: Tritium is a sort of
13 naturally evolving product as one of the isotopes
14 of hydrogen and specific proportion will occur
15 naturally. It tends to be increased by
16 radiological effects. It doesn't imply contact
17 between uranium, because there is no contact. The
18 fuel is obviously sheathed and it is clad, so
19 there is no process by which that happens.

20 Tritium, then, is present in the
21 circuits and is actually cleaned. So every now
22 and then we have to do a clean-up process to
23 remove the tritium from the heavy water to
24 maintain the levels that mean that we can work
25 with it comfortably. There are facilities on site

1 for that to take place. That is a sort of a
2 regular process.

3 MEMBER MacLACHLAN: Why do the
4 levels increase? Why does the tritium have to be
5 removed on a fairly consistent basis? What causes
6 it to increase?

7 MR. MOTTRAM: As I understand it,
8 I am not a physicist but it is sort of a
9 radiological decay effect. So there will be
10 naturally an increase in volume in a water reactor
11 of tritium through time. It is a function of
12 level of activity.

13 THE CHAIRPERSON: All the chemists
14 in the room want to jump in, but we won't let the
15 President jump in. We will let Mr. Blyth jump in
16 at this point.

17 MR. BLYTH: Let an engineer jump
18 in. Normal hydrogen atom, there is one proton in
19 the nucleus and one electron orbiting it. There
20 is a rare isotope of hydrogen called deuterium
21 where there is a proton and a neutron in the
22 nucleus. So it is heavier. Therefore, when that
23 is in the water, we call it heavy water.

24 At the start of life in a reactor
25 you have got heavy water in there with little or

1 no tritium in it, for the sake of argument. But
2 in the course of reactor operation and the
3 fissioning of the fuel, there is a lot of neutrons
4 being slowed down in the moderator by collisions
5 with the deuterium and some of those neutrons get
6 captured by the deuterium atom into the nucleus.
7 That becomes tritium. So protium, deuterium,
8 tritium, I don't know if that is Latin or Greek,
9 but it is one of those.

10 The tritium is radioactive. It
11 has a 12 year half life. So in the grand scheme
12 of things, it is not a long half life, but it
13 slowly builds up over time. Because it is a
14 radiological hazard, the systems have to be leak
15 tight and things like that, but you put programs
16 in place to control the levels of tritium below a
17 certain level. Eventually, as is fairly common
18 practice now, you send the heavily tritiated water
19 to a tritium removal facility and you bring the
20 level back to a more manageable level.

21 It is a part of the nuclear
22 process but it needs to be managed because of the
23 radiological risk. It is not to do with the
24 chemistry. It is not to do with direct contact
25 with the uranium.

1 MEMBER MacLACHLAN: Thank you very
2 much, both Dr. Blyth and Bruce Power. I wasn't
3 able to find that information on the record and I
4 think that is an important set of facts for the
5 public to understand. Thank you.

6 MR. HAWTHORNE: I will perhaps
7 help in saying it is in the report in Section
8 2.4.7. It does explain how tritium results from
9 neutron capture and it does explain the process.
10 It is a bit techy but it is there.

11 MEMBER MacLACHLAN: I will look at
12 it again. I did look for it several times. Thank
13 you.

14 THE CHAIRPERSON: Dr. Dosman.

15 MEMBER DOSMAN: For Bruce Power, I
16 would like to request some clarification on the
17 WINGS study. It seems somehow to be hovering
18 there in the background; it is there but we can't
19 cite it. I can only assume, to seek
20 clarification, it is because the authors wish to
21 publish material in the scientific literature.

22 I guess I would ask: Are the
23 publications coming out in the literature from the
24 WINGS study supportive of the material that has
25 been used from the WINGS study in the

1 environmental assessment report?

2 MR. MOFFETT: The goals and
3 objectives of the WINGS study were clearly
4 different from the goals and objectives of the EA
5 study report. The findings of the WINGS report
6 are generally consistent with what is in the EA
7 study report.

8 I believe the authors of the
9 study, in a letter to the First Nations to Chief
10 Akiwenzie, said that they are more conservative in
11 their study than Bruce Power is in its
12 environmental assessment, as you would expect for
13 an empirical scientific study. But there is not a
14 conflict in terms of the WINGS study does not
15 identify strong evidence that the power station
16 has effected. It doesn't come to conclusive
17 proof.

18 Remember an environmental
19 assessment discusses in terms of likely effects as
20 opposed to a scientific study which will deal with
21 further degree of proof.

22 The WINGS study does not
23 contradict. They are generally consistent. The
24 power of the WINGS study with respect to the
25 environmental assessment will come in terms of the

1 follow-up program. The elements that we have
2 identified in the follow-up program for whitefish,
3 both round whitefish or lake whitefish, overlap
4 with the high priority and medium priority
5 recommendations from the WINGS program.

6 So the outcome of the EA follow-up
7 program and the follow up from the WINGS study,
8 the three-year WINGS study should coalesce with a
9 number of common elements.

10 THE CHAIRPERSON: Dr. Barnes, do
11 you have any further questions?

12 MEMBER BARNES: No.

13 THE CHAIRPERSON: Dr. McDill?

14 MEMBER McDILL: No.

15 THE CHAIRPERSON: Mr. Graham.

16 MEMBER GRAHAM: No.

17 THE CHAIRPERSON: Thank you very
18 much. That concludes the questioning of Bruce
19 Power at this stage, but I would urge Bruce Power
20 to stay where they are for the next part of this.

21 We are just going to take a very
22 quick five-minute break so that the intervenors
23 can arrange themselves according to their order
24 and just up stretch and then we will be back in
25 five minutes.

1 --- Upon recessing at 3:00 p.m.

2 --- Upon resuming at 3:05 p.m.

3 THE CHAIRPERSON: We will now
4 resume with the interventions. Before I start, I
5 would like to remind the intervenors that are
6 appearing before the Commission today, and we have
7 notified you of this, that we have allotted about
8 ten minutes for each oral presentation. I
9 appreciate your assistance to help us to maintain
10 the schedule that we have for ourselves today.

11 I would like to assure you that
12 your more detailed written submissions have
13 already been read by the Commission Members and
14 will be duly considered as supplementals to your
15 oral presentations and to the questions that are
16 asked.

17

18 **02-H26.2**

19 **Oral presentation by Municipality of Kincardine**

20 THE CHAIRPERSON: With that first
21 comment, I would like to turn now to the oral
22 presentation by the Municipality of Kincardine.
23 This is outlined in CMD document 02-H26.2 We have
24 Mayor Kraemer with us, I believe, today. So Mayor
25 Kraemer, the floor is yours. Welcome.

1 MR. LARRY KRAEMER: Thank you,
2 Madam Chairperson and members of the Canadian
3 Nuclear Safety Commission. For the record, I am
4 Larry Kraemer, and I am the mayor of the
5 Municipality of Kincardine, which hosts the Bruce
6 nuclear power development.

7 I would like to thank you for the
8 opportunity today to convey to the Commission the
9 views of the residents of the Municipality of
10 Kincardine with respect to the proposed restart of
11 units 3 and 4 at the BNPD.

12 I would like to make clear to the
13 Commission that, in our opinion, abundant
14 opportunity was afforded to the public for comment
15 through the environmental assessment process.
16 Bruce Power and their assessors used a multitude
17 of methodologies for public contact, which
18 included community newsletters to individual
19 households, open houses, and myself and my
20 councillors attended those open houses. As my own
21 general observation, I would say that questions
22 were answered in a very forthright manner and
23 quite professionally.

24 Also, a presentation was made to
25 our municipality's Economic Development Committee,

1 as well as to a full session of committee of the
2 whole, which was broadcast on television and an
3 observation of that is we have a surprisingly
4 large regional viewership of that program. It is
5 rebroadcast. So, it makes for a very good way to
6 make the residents aware of issues that are going
7 on around them. That was important.

8 As well, as they indicated, they
9 did post all relevant documents in the libraries,
10 and they did mail out economic assessments reports
11 to all the interested parties, as well as use the
12 website. In essence, the net result of the
13 community based environmental assessment process
14 has been that all residents have a general
15 knowledge of the issues resulting from the return
16 to service of units 3 and 4, and opportunities
17 were certainly made available to anyone wishing to
18 receive more information on to engage Bruce Power
19 staff in those discussions.

20 With respect to the actual
21 environmental assessment screening report, I was
22 pleased to see that it was written in easily
23 understood terms. Many of these issues have been
24 discussed at both our Nuclear Liaison Committee as
25 well as our Impact Advisory Committee which has

1 both OPG and Bruce Power at it.

2 Just a comment on today's things.
3 I do remember the issue of elevated levels in the
4 test holes being discussed at those meetings. It
5 was also done in a very forthright manner. So,
6 that was, in our opinion, made quite public.

7 I am very comfortable with the
8 comprehensive approach that has been taken to
9 review all the potential impacts surrounding the
10 environment by returning units 3 and 4 to service.
11 I am specifically impressed with the extensive
12 review of potential effects to the land, air,
13 water, animal and health issues that are contained
14 in the report.

15 In regard to this information, on
16 behalf of the residents who live in the Kincardine
17 area, I am confident that the proposed restart of
18 units 3 and 4 will not have an adverse
19 environmental impact on the surrounding area. You
20 can rest assured that if that wasn't the case, we
21 wouldn't be here to support this at this point in
22 time.

23 One positive suggestion to foster
24 a greater distribution of relative environmental
25 and health information would be to consider

1 posting ongoing test results on the Bruce Power
2 website in order to allow both the public to be
3 aware and informed on this subject matter.

4 Once one comes to the belief on
5 the basis of the review environmental assessment
6 screening report, including the mitigation
7 measures, that the restart of Bruce A units 3 and
8 4 is not likely to cause significant adverse
9 effects on the environment, the community must
10 reflect on the following: A detailed safety
11 analysis of the proposed restart program; second
12 generation life of the nuclear assets and our
13 community's future; and the economic benefits to
14 the community. That is last but it is of real
15 importance to the community.

16 In addition to my presentation, I
17 wish to add a few issues that come to mind. Very
18 few industries in Canada or the world are exposed
19 to the scrutiny that the Canadian Nuclear Safety
20 Commission applies to the industry. As a result,
21 we have every confidence in the role the CNSC is
22 providing and the overview and guidance roles in
23 these matters. On the basis of the meticulous
24 approach observed in my previous comment, combined
25 with the general overview of the community, we

1 feel comfortable that the best interests of
2 society would be addressed by a positive outcome
3 of today's hearings.

4 A note that special interest
5 groups play an important role in any issue.
6 However, without a representative base, their
7 proposed solutions do not always compliment the
8 complex society that we live in.

9 If I might just make a couple of
10 soft observations, not put in at the point of our
11 writing of this, a few observations that I have
12 myself. I had absolutely no constituent calls of
13 concern with either the process or with the intent
14 of the process. That makes me feel that our
15 community is quite comfortable with how things
16 have gone forward.

17 We have noticed, and there is some
18 things happening locally and in our province
19 around shareholder issues with Bruce Power that
20 are fairly well known. We have found that Bruce
21 Power has been carrying on business as usual. Our
22 ability to contact them and communicate with them
23 and to interchange with them through our
24 committees and through our everyday contact has
25 been unaffected.

1 As part of my job as the mayor, I
2 get to see and talk to a lot of people that both
3 work there and don't work there. The staff seem
4 to be unaffected by the stories that have been in
5 the press. They seem to have a high amount of
6 belief in the future of Bruce Power, which makes
7 us feel good about things as well.

8 I would like to make one or two
9 last comments before I close. One was a
10 discussion today about a marine exclusion zone. I
11 would ask you to keep in touch with us on that.
12 One of my observations with regard to the marine
13 exclusion zone is that one of the attributes of
14 the plant, and this is from maybe a fairly well-
15 informed layman's perspective, is that in that
16 area there is a lot of fish because of the warm
17 waters and, hence, a lot of fishermen, and with
18 the fishermen, good tourist prospects and that is
19 an important part of our community.

20 In our area, I have lived and
21 owned land in the area for some 27 years. Deer
22 and wildlife seem to be on the increase and, in my
23 own wood lot -- I have a 150-acre property about
24 15 miles from the plant and about five miles from
25 the lake -- we raised a nest of golden eagles on

1 our own property the first time in 27 years. That
2 makes us feel that things are healthy and are
3 going properly from that perspective.

4 From a financial perspective,
5 since the Bruce Power take over, our committees
6 report increased visitors and increased building
7 permits in the last 18 months. That, too, is a
8 positive aspect of how we have seen things
9 develop.

10 I would like to conclude by saying
11 that we believe that the environmental assessment
12 was conducted with the consideration of both the
13 public and with insight and comment from them.
14 The findings of the scientific community allay any
15 potential concern. As a result, the Municipality
16 of Kincardine fully supports Bruce Power's
17 environmental assessment screening report as
18 written and as tabled before you today.

19 Thank you very much.

20 THE CHAIRPERSON: Thank you very
21 much, Mr. Kraemer.

22 The earlier conversation on the
23 marine exclusion zones, I let go because it
24 related to fish. But that is the security
25 arrangements around facilities, as you might have

1 heard, those of you who were here at the beginning
2 of the hearing this morning at 8:30, which are a
3 matter of security concerns to me.

4 I let that conversation go as far
5 as I am going to let it go today. To the degree
6 that there can be discussions about fish and other
7 impacts, that is fine. But the Commission will
8 make the decisions required to ensure the security
9 of the facilities in line with the orders that we
10 have put forward.

11 I am ending the questions on
12 marine security zones at this point. That said,
13 the floor is open now for Commission Members to
14 raise any other questions that came up from Mr.
15 Kraemer's speech.

16 Dr. Giroux.

17 MEMBER GIROUX: This is a question
18 I had planned to ask. It turns out to be linked
19 to the marine exclusion zone but doesn't bear on
20 it. Mr. Mayor, you state in your written
21 statement that your community places both the
22 environmental and human health above issues of
23 economic growth. Could you give me one or two
24 specific examples of how this has been applied in
25 the recent past in your decision making?

1 MR. LARRY KRAEMER: I believe I
2 can. In all cases, before any decisions are made
3 around support and that, issues of safety are
4 always at the top of the list. Included with
5 those are communication strategies to make sure
6 that everybody has a full opportunity to comment
7 and to bring any concerns to us before we go
8 forward.

9 It is a little bit hard to answer
10 the question. One of my duties as mayor is to sit
11 on our Emergency Preparedness Committee. We go to
12 great lengths to ensure the safety of the public
13 around the plant. We are one of the very few
14 municipalities that has a municipal operation
15 centre, and I believe in some of the Commission's
16 ongoing dialogue around emergency and safety
17 matters, Kincardine is used as an example.

18 From that perspective, the safety
19 is very high up there and we have gone to great
20 lengths as a community to ensure that it is
21 properly looked after.

22 From the more environmental
23 aspects, we have miles and miles of beach front.
24 The waters are continually monitored. We just
25 went through a process of authorizing an

1 environmental assessment of our own to put in
2 about a ten or 12 kilometre long pipeline to
3 supply the residents along the lake. Again, this
4 was both looked at coming out of some of the
5 problems from Walkerton, which is a neighbouring
6 community to us, as well as looking after the
7 long-term safety and supply of water to our
8 residents.

9 Almost everything we do in the
10 community has to look at both these issues in very
11 much the same way that you do here. The very
12 first thing in everything we do is safety.

13 THE CHAIRPERSON: Any other
14 questions from the Commission Members? Thank you
15 very much, Mr. Mayor.

16 **2-H26.3**

17 **Oral presentation by Chippewas of Nawash First**
18 **Nation**

19 THE CHAIRPERSON: We are now going
20 to move to the next intervention, which is an oral
21 presentation by the Chippewas of Nawash First
22 Nation. This is outlined in CMD document 02-
23 H26.3. We are very pleased today to have the
24 chief with us for their presentation. The floor
25 is now yours, sir.

1 CHIEF AKIWENZIE: Bonjour.

2 --- Native language spoken

3 Distinguished members of the
4 Canadian Nuclear Safety Commission, I am here
5 today and present also with me is Dr. Steve
6 Crawford, who can answer the technical questions
7 that may arise to present information for your
8 consideration as you deliberate on the date of the
9 Bruce Power environmental assessment study report
10 regarding the proposed restart of Bruce A units 3
11 and 4.

12 As you may be aware, the Chippewas
13 of Nawash First Nation has aboriginal and treaty
14 rights that are recognized under Section 35 of the
15 Canadian Constitution and protected under a
16 fiduciary responsibility by the Government of
17 Canada. Included among these rights are
18 aboriginal and treaty rights to our fisheries in
19 the main basin of Lake Huron along the entire
20 Bruce peninsula and eastern shore, southward past
21 Douglas Point, site of the Bruce nuclear power
22 development.

23 As such, the Chippewas of Nawash
24 are not simply a stakeholder in these proceedings.
25 This would be a fundamental misunderstanding of

1 aboriginal rights and the treaties that were
2 signed between the Chippewas of Nawash First
3 Nation and the Crown on a government-government
4 basis. These treaties are still in effect today
5 as you consider the impact of the proposed restart
6 of Bruce A on our aboriginal and treaty fishing
7 rights.

8 Over the past decade, the
9 Chippewas of Nawash have conducted extensive
10 scientific research on the Lake Huron ecosystem,
11 which supports our fisheries. The results of this
12 ecological research have been presented at
13 scientific conferences, distributed as numerous
14 technical reports and published in the primary
15 scientific literature.

16 As part of this research program,
17 we are specifically focused on the ecological
18 effects of the Bruce nuclear power development on
19 the whitefish populations that support our Lake
20 Huron fisheries. We entered into a three-year,
21 and I cannot emphasize, a three-year collaborative
22 research program, the WINGS project, otherwise
23 known as the Whitefish Interactions of Nuclear
24 Generating Stations with Ontario Power Generation,
25 Bruce Power and the University of Guelph. Over

1 these past three years, we have worked with our
2 partners to develop a substantial knowledge
3 regarding whitefish ecology and the effects of
4 nuclear generating stations on fish populations,
5 leading to the co-authorship of two major
6 scientific reviews on the subject.

7 We have become very familiar with
8 the Bruce nuclear power development and the
9 science of evaluating hypothesized ecological
10 effects by testing the predictions of these
11 hypotheses. The Chippewas of Nawash know the
12 difference between good science and bad science.

13 Recently Nawash has also conducted
14 an extensive scientific review and evaluation,
15 Crawford 2002, of the Bruce Power 2002 A, B and C
16 EA study report on the proposed restart of Bruce
17 A, as well as a draft screening report that was
18 prepared by CNSC staff. Our scientific review,
19 Crawford 2002, was submitted to the CNSC staff for
20 their consideration as they prepared their final
21 screening report and recommendations which you
22 have before you now.

23 You will read:

24 "The Chippewas of Nawash have
25 serious scientific concerns

1 regarding the Bruce Power A
2 2000 EA study report in
3 general and the effects of
4 the proposed Bruce A restart
5 on our Lake Huron fisheries,
6 in particular."

7 It is very important to realize
8 the objective of the Chippewas of Nawash is not to
9 shutdown the BNPD or to seek termination of the
10 proposal to restart Bruce A. If so, we would not
11 have entered into a good faith relationship with
12 the OPG and the Bruce Power to conduct
13 collaborative research on the effects of the BNPD
14 on the whitefish populations that support our
15 fisheries.

16 We must, however, firmly insist
17 that the proposed restart and operation of Bruce A
18 meets the burden of scientific proof, and I
19 underline especially burden of scientific proof,
20 that is required to protect my community and the
21 fishery that is a foundation of our economic and
22 cultural survival. Under the section of
23 scientific review and evaluation of Bruce Power EA
24 study report and the CNSC staff screening report,
25 we have this to say. With that in mind, let us

1 consider the Nawash scientific review and
2 evaluation of the Bruce Power 2002 EA study report
3 on the proposed restart of Bruce A and the draft
4 screening report that was prepared by the CNSC
5 2002 staff.

6 As a matter of housekeeping, it
7 would be noted that the executive summary of the
8 Nawash submission was accidentally truncated by
9 CNSC staff when transferred to the appendices of
10 their final screening report. The complete
11 executive summary of the Crawford 2002 report is
12 presented here as attachments 1 and 2, which you
13 have a copy of. Please refer to attachment 2 of 2
14 for the detailed review and scientific evaluation
15 of the CNSC staff screening report prepared by Dr.
16 Steve Crawford, Nawash Fisheries Management
17 biologist.

18 If you refer to Table 12 there, it
19 presents a summary of the staff responses to the
20 Chippewas of Nawash scientific concerns and it can
21 be seen that of the 12 legitimate scientific
22 concerns expressed by Nawash, CNSC staff chose not
23 to respond to ten of those. In our estimation,
24 this is simply unprofessional and unacceptable.
25 Of the two Nawash concerns, it listed CNSC staff

1 responses, that is, the exclusion of lake
2 whitefish as a VEC, intentionally ignoring
3 collaborative WINGS project. Both were dismissed
4 as lacking validity.

5 In general, based on the Nawash
6 review of the CNSC staff screening report, Bruce
7 Power EA study report and Bruce Power aquatic
8 environment and technical support document for the
9 proposed project, it is clear to us that there are
10 many serious scientific and technical problems
11 associated with Bruce Power's evaluation of
12 environmental effects on the aquatic environment,
13 on fish populations in general and on lake
14 whitefish and the Nawash fishery in particular.

15 The major systemic problems that
16 plague the CNSC staff screening report and the
17 Bruce Power report study report include, and there
18 are four points.

19 One, an exhibition of poor
20 understanding and application of the scientific
21 method with no formal hypotheses of cause and
22 effect relationships; no demonstration of
23 relationship between hypotheses and testable
24 predictions; no evaluation of alternative
25 hypotheses using probabilities. In short, no

1 scientific method and, therefore, no scientific
2 defensibility.

3 Two, using little or no reference
4 to supporting documentation for the ecological
5 basis of evaluation effects of the proposed Bruce
6 A restart, stating that it has conducted reviews
7 of the available theory and evidence, yet
8 providing no documentation of these alleged
9 reviews. This general lack of documentation for
10 decision making is not in keeping with good
11 management practices, since it does not allow for
12 transparency and accountability.

13 Third, not providing rationale for
14 why selected project systems were identified as
15 having "slightly measurable effects" whereas other
16 project systems were excluded. This lack of
17 documentation for decision making is unacceptable
18 as a general matter of accountability and good
19 business practice.

20 Four, presenting evaluations that
21 exhibited a strong dependency on untested and
22 faulty assumptions, leading to decisions based on
23 speculation.

24 The major project specific
25 problems exhibited in the CNSC 2002 A screening

1 report and the Bruce Power 2000 EA study report
2 include the following points and there are four of
3 those.

4 One, intentional ignoring highly
5 relevant ecological theory and evidence provided
6 to them as full partners in the University of
7 Guelph WINGS project. The theory and evidence
8 related to lake whitefish ecology; the ecological
9 effects of the Bruce Nuclear Generating Stations
10 on fishes and specific evidence of larvae and
11 adult lake whitefish at the Bruce Nuclear
12 Generating Station.

13 Two, selectively employing some of
14 its criteria for selecting valued ecosystem
15 components, known as VECs, while ignoring other
16 criteria, notably socioeconomic importance.

17 This selective employment of
18 criteria was virtually undocumented and relied
19 heavily on unsupported claims, biased evidence and
20 flawed logic. Using its selection process, Bruce
21 Power managed to reach the unreasonable conclusion
22 that lake whitefish should be excluded from the
23 list of selected VECs for the proposed project.

24 Third, withholding important
25 evidence belonging to Bruce Power, evidence which

1 indicates the presence and abundance of lake
2 whitefish at the Bruce site, and contradicts Bruce
3 Power's critical assertion that "lake whitefish do
4 not appear to make use of this area to any
5 substantial degree," and, thus, were not
6 considered a suitable VEC for assessment of the
7 effects from the Bruce A restart.

8 Four, attempting to divert all
9 issues associated with lake whitefish and the
10 Nawash fishery into a post-hoc follow-up program
11 that is dismissive and undefined.

12 To finish up this particular
13 section before I get to the remedies, and the
14 remedy section is my final section here -- I am
15 looking at the time very carefully -- take as a
16 whole, these systemic and problem-specific
17 problems plague the Bruce Power 2000 EA study
18 report and the associated screening report
19 prepared by CNSC 2002 staff, combining to yield a
20 product that is generally unacceptable in terms of
21 scientific quality. Based on the evidence
22 reviewed in this report, the CNSC 2000 staff have
23 been extremely remiss in accepting the conclusions
24 of the Bruce Power 2002 EA study report,
25 especially as they relate to lake whitefish

1 populations in Lake Huron, and the Nawash fishery
2 that is based upon them.

3 What are the remedies as we see
4 it? We have three basic remedies and then I have
5 a wrap up. Based on the Nawash scientific review
6 and evaluation of the Bruce Power EA study report
7 and the CNSC staff screening report, it can be
8 seen that there are serious problems with the
9 manner in which this environmental assessment was
10 conducted, particularly as it relates to effects
11 on whitefish populations of Lake Huron and the
12 Nawash fisheries, which are protected by
13 aboriginal and treaty rights. Clearly, the
14 proposed restart and operation of Bruce A does not
15 meet the burden of scientific proof, and I
16 underline that with emphasis, that is required to
17 protect the Nawash community and the fishery that
18 is a foundation of our economic and cultural.

19 Given these serious shortcomings,
20 it is important to consider options for remedy
21 that would be reasonable, fair and consistent with
22 the Government of Canada's fiduciary
23 responsibilities to the Chippewas of Nawash First
24 Nation. These are, and there are three of them.

25 With respect, Nawash offers these

1 following options for remedies regarding the CNSC
2 evaluation of Bruce Power's proposal to restart
3 Bruce A units 3 and 4.

4 Number one, lake whitefish will be
5 recognized as a legitimate VEC for this proposed
6 project, a VEC which must be fully and
7 appropriately considered, and we emphasize before
8 the CNSC determines whether it will approve the
9 Bruce Power environmental assessment study report
10 and the proposed restart of Bruce A units 3 and 4.

11 Two, a qualified independent peer
12 review will be undertaken of the Bruce Power EA
13 study report with a focus on the aquatic
14 environment in general and VEC whitefish
15 populations of Lake Huron in particular. This
16 review will be based on sound scientific
17 principles and conducted by credible scientific
18 experts who are independent of the CNSC, Bruce
19 Power and the Chippewas of Nawash.

20 Finally, number three, if the
21 results of the aquatic and environmental reviews
22 support the conclusion that the Bruce Power EA
23 study report is generally unacceptable in terms of
24 scientific quality, then the CNSC will develop a
25 revised set of guidelines for conducting an

1 environmental assessment of the proposed Bruce A
2 restart. These revised guidelines would be used
3 to govern to implementation and submission of any
4 future proposal by Bruce Power or any other party,
5 for that matter, to restart Bruce A.

6 We know that some of you on the
7 CNSC are professional scientists. As such, you
8 are fully aware of the requirements of defensible
9 science and you must see that this environmental
10 assessment is severely lacking in scientific
11 credibility. You must also see that the
12 requirements of the Chippewas of Nawash are
13 legitimate and that our proposed remedies are
14 reasonable and fair.

15 I thank you for the opportunity to
16 present our perspective for your consideration as
17 you deliberate on the fate of the Bruce Power
18 environmental assessment study report regarding
19 the proposed restart of Bruce A, units 3 and 4.

20 Chief Ralph Akiwenzie, Chippewas
21 of Nawash First Nation.

22 THE CHAIRPERSON: Thank you very
23 much, sir.

24 Now the floor is open for
25 questions. Dr. Barnes.

1 MEMBER BARNES: I have a number.
2 I really appreciate this contribution. It brings
3 some very important information. However, I
4 confess to being a little confused.

5 The first conclusion is the Table
6 1, Chief, you put in there which extracts
7 information from Dr. Crawford's 2002 document and
8 outlines that CNSC staff have not responded in ten
9 out of 12 components. So, my confusion is as
10 follows.

11 When one looks in the appendices,
12 Crawford 2002 has a date of September 30 of this
13 year. The Golder document is August, and the
14 screening report is just dated October. One might
15 then be led to believe that both the Golder and
16 the CNSC screening document had largely been
17 either already completed, in the case of Golder,
18 or virtually completed in the case of CNSC before
19 they had seen this table. Right? That is just
20 based on the dates of references.

21 If I could go on a little further,
22 what I think is more fundamental in the
23 information that you have given us, and I would
24 like to again come back, I raised it provisionally
25 earlier, both comments from CNSC staff and also

1 Bruce Power and Golder, is that clearly this WINGS
2 study, which had been a cooperative agreement
3 between the First Nations, the University of
4 Guelph, and Bruce Power, was well known to the
5 proponents. It is important, I think, to look at
6 the very last page of your submission, which is
7 the letter from David Noakes, one of the leaders
8 of this group, who, the next to last paragraph
9 says:

10 "I find it surprising,
11 however, that those
12 developing a proposal as
13 significant as the proposed
14 restart of units of Bruce A
15 would not go to greater
16 lengths than suggested by
17 this paragraph [paragraph
18 above] to avail themselves of
19 information from the WINGS
20 Project. This is
21 particularly surprising when
22 it is my understanding that
23 Bruce Power was a major
24 proponent in developing that
25 proposal, and would have been

1 completely informed on the
2 WINGS Project through their
3 representative on our Core
4 Group."

5 Earlier in that document on the
6 previous page, on the last paragraph of the first
7 page, he addresses the issue of "do not cite,"
8 which I think is not an important thing. He
9 points out that "do not cite" is essentially to
10 have those initial documents referred to the
11 advisory group, and continues that the final
12 report had been submitted.

13 I am at a loss that a major study
14 like this, when we saw references to at least
15 three or four documents coming out of the WINGS
16 group of the order of 150, 200 pages on various
17 aspects of this issue of particularly the lake
18 whitefish, that again it is not referred to in the
19 Golder document; it is not referred to in the CNSC
20 document.

21 I would like really to ask both
22 Bruce Power and/or Golder and the CNSC staff to
23 really address why these WINGS reports have not
24 been more fully acknowledged and built into the
25 documents.

1 Bruce power can go first.

2 MR. MOFFETT: Dr. Barnes, I did
3 say that we used information from the WINGS study
4 in our environmental assessment. For example, the
5 WINGS study finds the presence of round whitefish
6 is more common at close proximity to Bruce A and
7 lake whitefish are more common proximity to Bruce
8 B. We need to remember that Bruce B is three or
9 four kilometres around the lake from Bruce A. So
10 we most certainly did use information from the
11 WINGS study in our EA study report.

12 The question of "do not cite," two
13 Golder biologists went to a meeting in Guelph,
14 came back with the documents and there were two
15 conclusions from those documents.

16 One, the WINGS study is not
17 complete and will not be finalized until after the
18 EA study is finalized and we have been given
19 documents that said "do not cite."

20 I was the project manager of the
21 environmental assessment. I made a judgment that
22 if I got a document from somebody that said "do
23 not cite," that I would not cite it in a public
24 document that was broadly distributed like the
25 environmental assessment. I made that call and I

1 will take the responsibility for that call.
2 However, that is not to say that information was
3 not used.

4 My final point is that much of the
5 information in the WINGS study report is of value
6 in terms of determining the population of
7 whitefish, whether there is a local or lake-wide
8 population of lake whitefish for example, whether
9 there is spawning success, issues that are more
10 related to the follow-up program than they are to
11 the details of the assessment of whether there are
12 likely effects of the restart.

13 MEMBER BARNES: Can I have a
14 comment from staff?

15 DR. THOMPSON: Essentially, the
16 process that the CNSC staff took was to review the
17 technical documents referring to the choice of
18 assessment end points for fish, looked at the
19 available information from the WINGS project, the
20 draft reports, as well as from other sources.

21 The conclusion we came to was that
22 using round whitefish as a representative species,
23 essentially that covers the assessment of lake
24 trout, lake whitefish, round whitefish and other
25 cold water species that spawn close to the Bruce

1 site, was a conservative choice because of the
2 characteristics of the round whitefish.

3 The intent was not to say that
4 lake whitefish is not a valuable national resource
5 for Lake Ontario commercial fishermen, as well as
6 for aboriginal fisheries. The intent was simply
7 to choose a species that, because of its
8 biological characteristics, would be more exposed
9 to the thermal impacts and impingement/entrainment
10 of the Bruce station.

11 When the WINGS final report was
12 available, we did review the final report and
13 looked at the comments that were made by the
14 Nawash on the draft EA report. From that
15 information, there is a response, a CNSC staff
16 technical response on our interpretation of the
17 data in the final WINGS report and how it
18 supported the choice of round whitefish as what we
19 call a valued ecosystem component. We could have
20 called it an assessment end point.

21 We didn't see anything in the
22 final WINGS report that contradicted or
23 invalidated the earlier choice that had been made
24 based on available information from the draft
25 reports.

1 Having said that, it is not
2 because lake whitefish are not namely called
3 valued ecosystem components that they haven't been
4 assessed as part of the environmental assessment.
5 The choice of representative fish species was
6 based on biological characteristics, as well as
7 characteristics of the station. We are confident
8 that the fish species that were chosen as valued
9 ecosystem components represent a range of species
10 that can be potentially impacted by the Bruce
11 station.

12 THE CHAIRPERSON: Chief, please
13 feel free.

14 CHIEF AKIWENZIE: Madam Chair,
15 with all due respect, I would like to call on our
16 biologist to reply to that, Dr. Crawford.

17 THE CHAIRPERSON: Yes, I will
18 acknowledge Dr. Crawford.

19 DR. CRAWFORD: Thank you. My name
20 is Steve Crawford. I am a Nawash Fisheries
21 Management biologist.

22 There are several issues that have
23 been brought forward, at least six to my count. I
24 am going to try to use my failing memory to deal
25 with them in order.

1 The first has to do with Table 1
2 in Chief Akiwenzie's presentation. It is the
3 summary representation of staff responses.
4 Perhaps it is not clear enough, but this
5 represents 12 different issues that were presented
6 by the Chippewas of Nawash to the Canadian Nuclear
7 Safety Commission with regards to the draft
8 screening report. Then we went back and took a
9 look at the screening report in its final form.
10 In the three-page technical response, I believe it
11 is three pages, that CNSC devoted in response to
12 our issues, that is where I did the evaluation,
13 realized that two of them had been addressed in
14 the content of those three pages and dismissed,
15 and the other ten had not been addressed.

16 In the first place, does that deal
17 with your concerns regarding that table?

18 MEMBER BARNES: Yes.

19 DR. CRAWFORD: The second thing
20 has to do with the relationship between the
21 Chippewas of Nawash, Bruce Power as a collaborator
22 on the WINGS project. I am a member of the core
23 group, and the core group is structured with a
24 representative from each of the collaborating
25 partners. There is an advisory group around there

1 that represents agencies that may have something
2 to say.

3 The information that we had was
4 constantly available to Bruce Power in terms of
5 regular program updates. I realize that Golder
6 Associates were invited to and did attend one of
7 our WINGS advisory group meetings, but there was a
8 Bruce Power representative on the core group and
9 all of the updates and all of the drafts in all of
10 their various stages were made available to them,
11 which leads me to the third major point, which is
12 the "do not cite" on the drafts.

13 One of the reasons why I asked Dr.
14 Noakes from the University of Guelph to write that
15 letter was to clarify what was meant by that. "Do
16 not cite" on the draft documents, and this was
17 known to the core group, was targeted at the
18 advisory group: Please don't distribute this
19 beyond your usage; it belongs to the WINGS
20 project. It didn't in any way preclude Bruce
21 Power from using any and all of that information.

22 As a matter of fact, and this is
23 my next point, the final core group meeting that
24 we had for the WINGS project, it was me who
25 brought the question to the table about how was it

1 that Bruce Power was going to be using the WINGS
2 project information in the Bruce restart EA. And
3 when I asked the question, both Bruce Power and
4 OPG officials turned and looked at me and said,
5 well, you better contact the CNSC. That was the
6 beginning of my relationship with your
7 organization.

8 The last thing has to do with
9 selection of the VECs and specifically with
10 respect to the criteria that were used. I brought
11 an overhead, if you can put that up on the screen,
12 please. It is an overhead which is actually part
13 of Bruce Power's environmental assessment study
14 report. It is in the appendices. Right at the
15 bottom you can see the reference.

16 Basically this is part of their
17 public open house material. This is information
18 that they were distributing before they did the
19 work. You can see that they characterized the
20 concept of valued ecosystem components. There are
21 three fundamentally different aspects: Number
22 one, legally recognized and afforded protection;
23 number two, recognized by scientific or
24 professional institutions; and number three,
25 recognized by the public as important because of

1 social/economic value or for a role in maintaining
2 the quality of life in a community, and they give
3 the explicit reference to the whitefish fishery
4 there.

5 It is very difficult to understand
6 how it could be that something that was known to
7 be an example VEC very clearly somehow did not
8 make it to the short list.

9 Thank you.

10 THE CHAIRPERSON: Dr. Giroux and
11 then back to Dr. Barnes, unless, Dr. Barnes, it is
12 a follow-up question.

13 MEMBER BARNES: I will wrap it up,
14 if I could, because I am concerned about this
15 disconnect, which I confess I cannot understand
16 and I just do not believe that Bruce Power was --
17 obviously it has just been confirmed -- not aware
18 of this and, therefore, I am just cannot believe
19 why it would not have been built into this sort of
20 document.

21 In connection to Dr. Thompson's
22 comments, I just read the section from the Chief's
23 document on page 22 of 40, I guess it is. This is
24 at the bottom. There are two quotes.

25 "Finally, CNSC (2002a) staff

1 conclude the paragraph with
2 the optimistic suggestion
3 that the EA conclusions and
4 the WINGS Project findings
5 are consistent (i.e. not
6 inconsistent.) Consider the
7 primary conclusion and
8 recommendation from the WINGS
9 Project:
10 'We cannot definitely assess
11 the ecologic risk to be
12 whitefish resulting from
13 exposure to stressors at the
14 BNPD at present because there
15 is no information on lake
16 whitefish or round whitefish
17 population structure near the
18 BNPD. We recommend that
19 population assessment work be
20 undertaken to identify the
21 lake whitefish and round
22 whitefish populations to
23 which individuals collected
24 in the waters around Douglas
25 Point belong.' (Holme &

1 Noakes 2002)
2 Now consider the conclusions
3 of the Bruce Power (2002a) EA
4 Study Report regarding the
5 effect of the proposed
6 project on Lake Huron fish
7 populations in general
8 (including lake whitefish)
9 and the 'aboriginal fishery'
10 which is supported by those
11 fish populations."

12 The direct quote is as follows
13 from the EA:

14 "The overall impact on fish
15 populations is nominal, and
16 localized, and not expected
17 to have a measurable effect
18 on the lake-wide fish
19 populations. Based on this,
20 it is concluded that there
21 will be no likely effect of
22 this change on the aboriginal
23 commercial fishery as a
24 result of the project."

25 These are two inconsistent

1 statements. The first comes out of the WINGS
2 document, which we have heard was clearly
3 available to Bruce Power and its agent, if you
4 like, Golders, in preparing this, we have heard
5 also had access to this information, and yet come
6 to a completely different conclusion.

7 So, whereas Mr. Moffett said that
8 they read it and built in some information, it
9 seems to me there is a possibility that they
10 picked out certain information and disregarded
11 other kinds of information.

12 Here we have a presumably very
13 professional study being done at the University of
14 Guelph and they arrive at a conclusion and, yet,
15 the EA study arrives at a completely different
16 conclusion. Perhaps Dr. Moffett might want to
17 comment on that.

18 MR. HAWTHORNE: Can someone who is
19 not a doctor try?

20 MEMBER BARNES: Sure.

21 MR. HAWTHORNE: I guess my general
22 view here is that no one anywhere is suggesting
23 that the WINGS study is not a highly valuable
24 piece of work. That has never been in question.
25 We, because of our Scottish heritage, don't throw

1 money around unless we get something of value.
2 There is no indication at all of anyone suggesting
3 this is anything other than a very thorough and
4 professional piece of work. That has never been
5 in debate.

6 What is an issue for us is is the
7 purpose and intent of the WINGS survey and the EA
8 consistent? The message I think we have heard
9 today is that the purpose of both of these studies
10 is not exactly the same. However, there are
11 elements that compliment each other. As I have
12 said, Bruce Power are committed to continuing to
13 develop the arrangements and relationship through
14 the WINGS survey, including putting our hands in
15 our pockets to continue to fund that activity.

16 To me, I have the highest regard
17 for the work and the professionalism which has
18 been done in this survey. The issue for me
19 largely is about is it reasonable for us to
20 consider that this is an inline activity around
21 Bruce A restart, when all of the academic evidence
22 to the contrary would suggest that most of the
23 information we have of greatest relevance to the
24 EA is to establish the likely environmental
25 effect. That is a test we have to pass for the

1 year. In doing so, we saw all of the academic
2 input, including requests from the appropriate
3 people to attend our workshop, during which time
4 they could have had a very active input to the
5 choice of valued ecosystem components.

6 It was at that workshop, open to
7 all who wanted to be there, that we made the
8 determination on which valued ecosystem components
9 we would choose.

10 I guess the basic message from me
11 is I am entirely supportive of the WINGS study; I
12 am entirely supportive of continuing to do this;
13 and I am entirely supportive of Bruce Power
14 playing its part in what is a lake-wide issue.
15 The issue for us today is how relevant is the
16 entire thrust of the WINGS report to the test that
17 we have to pass for EA, and they are frankly not
18 the same test and not for the same purpose. But
19 we have categorically not ignored the WINGS survey
20 as part of our reassessment.

21 THE CHAIRPERSON: Staff.

22 MR. BLYTH: I will ask Dr.
23 Thompson to comment.

24 DR. THOMPSON: I probably should
25 put some of the comments I made earlier in

1 context.

2 Essentially, CNSC staff recognize
3 the value of the WINGS study. We have done
4 technical reviews of documents, as they were
5 produced, and support the recommendations in the
6 WINGS final report.

7 Essentially, I think everybody
8 recognizes that there is a lack of information,
9 lack of data on lake-wide populations versus local
10 populations. However, in using the WINGS project,
11 what we did was to actually look at the biological
12 characteristics, ecological characteristics of the
13 lake whitefish to confirm that, by having an
14 assessment of eggs and larvae in close proximity
15 to the thermal plume, we were being reasonably
16 conservative in the assessment.

17 We didn't see anything in the
18 WINGS project that contradicted the information
19 that we used to make that decision.

20 In our ability to make a
21 conclusion in terms of not likely to have
22 significant environmental effects, essentially
23 through the EA process three issues were
24 considered to have a potential impact on
25 whitefish. One is entrainment, the other is

1 impingement, and the last is thermal effects. The
2 assessment of thermal effects looked at round fish
3 eggs and larvae exposed to a thermal plume, and
4 the assessment concluded that they were not likely
5 to have any thermal effects on round whitefish,
6 larvae and eggs that were in contact with the
7 plume.

8 In terms of impingement and
9 entrainment, although we don't have a lot of good
10 information on the distribution of the populations
11 in Lake Huron, we do have numbers or bio mass of
12 fish harvested through entrainment and
13 impingement. Essentially, when we compare the
14 volumes or the mass of round whitefish harvested
15 or killed because of entrainment, it is less than
16 100 kilograms per year in comparison to several
17 thousand kilograms of fish harvested through
18 commercial fisheries. So, it is the difference in
19 orders of magnitude that we used to say that
20 entrainment/impingement will not significantly
21 affect a population, given those comparisons, and
22 we have concluded for thermal that, because of the
23 lack of effects on embryo and larvae that were
24 closer to the site, both species would be
25 protected.

1 The proposal for a follow-up
2 program is to make sure that the conclusions are
3 validated with better information on local
4 populations.

5 THE CHAIRPERSON: Dr. Crawford, I
6 will give one last comment, but I am very
7 conscious of the fact that I don't want to turn
8 this into a workshop or a debate on these issues.
9 There has been a lot of information put forward
10 and I am going to be asking Bruce a question, but
11 Dr. Crawford, first.

12 DR. CRAWFORD: You are very kind.
13 I think I can speak on behalf of the Chippewas of
14 Nawash. We let our documentation speak for us.
15 Thank you.

16 THE CHAIRPERSON: My question is
17 for Bruce. Steve, if you could put back that
18 overhead that was supplied to us. This document
19 appears to me to have, at the very least, given
20 the First Nation, a view that this was going to be
21 considered in terms of the VECs.

22 Could you give us some
23 understanding of if this was not being looked at
24 in terms of VECs at this time, could you give us
25 some sense of the timing of this document or

1 whatever?

2 It appears, and I could see how it
3 could be read as such, and then all of a sudden it
4 didn't appear later.

5 MR. MOFFETT: I believe the origin
6 of this document is related to background
7 information produced at about the time of the
8 workshop whereby we initially selected a list of
9 VECs. I think that is the origin of this,
10 whereby, we as scientists and engineers picked our
11 list of VECs using a methodology identified by
12 CNSC staff.

13 We put forward that preliminary
14 list at a workshop and invited comment on the
15 workshop, trying to give examples to people of
16 where VECs came from. We used similar material at
17 open houses early in the process.

18 I guess I have to say over and
19 over again, the white fishery was considered
20 through the use of a representative species.

21 THE CHAIRPERSON: However, I think
22 what I heard was when you look at that document
23 and you see social/economic value, and this was
24 one of the points that has just been brought up,
25 is the issue that it appears that the lake

1 whitefish -- and correct me if I am wrong here --
2 is considered of greater socioeconomic value than
3 the round fish.

4 If you look at this document and
5 you look at the choice, I am sure there were lots
6 of other factors in the VEC. Perhaps you could
7 explain to us why what appears to be one of three
8 issues was then not considered of import in the
9 choosing of the VEC?

10 MR. MOFFETT: The reason why we
11 picked round whitefish, despite the fact of a lake
12 whitefish fishery, was to be conservative in our
13 estimation of effects. Because the round
14 whitefish is not a fish species or is not subject
15 to the same fishing as is lake whitefish, then any
16 effects of the releases from Bruce A on round
17 whitefish would be easier to trace to cause and
18 effect relationship as opposed to the lake
19 whitefish, where there would be a confounding
20 effect because the species is fished as a
21 commercial fishery.

22 We would have had difficulty in
23 distinguishing between effects caused by the
24 fishery and effects caused by the station.

25 THE CHAIRPERSON: Thank you. That

1 is very helpful.

2 Dr. McDill.

3 MEMBER McDILL: Could CNSC staff
4 tell me whether they believed that they made no
5 response to ten items in Table 1? Does CNSC staff
6 feel they responded to those ten items, I guess
7 would be a better question?

8 DR. THOMPSON: Essentially when we
9 receive comments from either federal departments,
10 provincial departments, First Nations or public
11 stakeholders, we go through the submissions in the
12 same manner. We essentially go through the
13 submissions looking for technical information that
14 relates to the information in the draft documents.

15 We went through the submissions,
16 identified issues with the choice of whitefish as
17 a VEC, tried to address this in a response that is
18 documented in one of the appendices. Our sense
19 from the response is that we had dealt with the
20 technical content of Dr. Crawford's submission on
21 behalf of his community.

22 The intent was not to be
23 disrespectful or to ignore comments, but
24 essentially we do for all intervenors and other
25 commenters is to look for the technical content to

1 see how the document should be reviewed or
2 revised, if necessary. We don't normally respond
3 to issues that are of opinion or things that are
4 outside of the scope of the environmental
5 assessment. In that sense, we believe that the
6 response addresses the technical issues in the
7 submission.

8 MEMBER McDILL: So, for example,
9 there was no exchange of information on the
10 scientific methodology that Golder was employing
11 to the First Nation in question?

12 DR. THOMPSON: No, because the
13 methodology that was used in the environmental
14 assessment has been well described. We recognize
15 that doing an environmental assessment is not
16 similar to doing a research study, where you
17 identify a hypothesis and try to test it.
18 Essentially, we did not provide information of
19 that nature because it was already in the
20 environmental assessment documentation.

21 MEMBER McDILL: Could I ask Dr.
22 Crawford, on behalf of the Nawash, if he could say
23 what he finds unconservative in the choice or non-
24 conservative in the choice?

25 DR. CRAWFORD: Can you clarify

1 what you mean non-conservative in what respect?

2 MEMBER McDILL: The choice of
3 round whitefish was identified as a conservative
4 choice as a VEC. How do you find the choice
5 lacking in being conservative?

6 DR. CRAWFORD: I think that both
7 Bruce Power and the CNSC have made some
8 fundamental mistakes with respect to interpreting
9 life history. I think if you check with the WINGS
10 report and the people that authored it -- I am an
11 author on two of the reports, but on the final
12 recommendation -- you will see that round
13 whitefish and lake whitefish are not the same and
14 that one cannot really be used as a surrogate. I
15 believe I tried to point that out clearly in our
16 documentation in this final round.

17 In terms of conservative
18 estimates, it gets to the issue about the
19 scientific method. As far as I am concerned, as
20 far as we do business at the Chippewas of Nawash,
21 science, whether it is an environmental assessment
22 or laboratory studies is based on hypotheses of
23 possible cause and effect relationships and that
24 those hypotheses generate predictions that can be
25 tested, and that the currency for evaluating risk

1 is probability of hypotheses, and that is
2 basically where we are at.

3 There is no basis, as far as I can
4 see, in theory or evidence to say that round
5 whitefish is a more conservative choice. Quite
6 frankly, I think we have a great uncertainty with
7 both round and lake whitefish populations.

8 MEMBER McDILL: Do you agree with
9 the statement that the lake whitefish is fished to
10 a greater extent than the round whitefish, and,
11 therefore, in terms of testing predictions would
12 be more difficult to assess?

13 DR. CRAWFORD: There are two
14 pieces of information I think you need to know.
15 Number one, round whitefish shows up in the
16 commercial fishery. We see them in our nets, but
17 they are not typically segregated with the
18 commercial statistics. They are recognizable and
19 identifiable to a biologist, but they get thrown
20 in the same boxes.

21 The second thing is it is
22 impossible to tell until you define population
23 abundance and distribution. It is the driving
24 uncertainty.

25 Did I answer your question?

1 MEMBER McDILL: I think so. Do
2 you think this proposed follow-up study would
3 address the concerns of the Nawash Nation?

4 DR. CRAWFORD: I think it is
5 pretty clear that the position of the Chippewas of
6 Nawash and the remedy that they are seeking from
7 the CNSC is that the environmental assessment
8 should have legitimately considered the effects on
9 lake whitefish as a legitimate VEC prior to
10 approval and that we consider the follow-up work,
11 although I am sure it will be done quite well, to
12 be a necessary prerequisite for approval as
13 opposed to a post-hoc follow-up.

14 MEMBER McDILL: Thank you.

15 THE CHAIRPERSON: Dr. Giroux.

16 MEMBER GIROUX: The presentation
17 by Chief Akiwenzie and the report of Mr. Crawford
18 are a very serious challenge and criticism of the
19 scientific credibility and the methodology of the
20 assessment. I think both Bruce Power or Golder
21 and staff should be given the opportunity to
22 respond on what are your views of the criticism
23 and respond on your methodology.

24 MR. MOFFETT: My response comes
25 from the difference in the objectives and the

1 nature of the science that happens in the two
2 studies. An environmental assessment is, of
3 necessity, a forward looking and planning tool,
4 which, of necessity, does not have all the
5 information one would need to happen.

6 At the Bruce Power site, we are
7 fortunate to have 20 years of experience to give a
8 larger database for making a judgment than in many
9 of the environmental assessments that are done in
10 Canada and around the world.

11 The environmental assessment
12 methodology we followed in the Bruce Power
13 environmental assessment report meets all the
14 tests of the Canadian Environmental Assessment
15 Act, all the tests of the world bank environmental
16 assessment methodology, all the tests of
17 assessment methodologies in Europe. As I said in
18 my remarks, it was carried out to a standard
19 defined in our environmental assessment protocol,
20 which is designed to do just that.

21 The guidelines issued by the
22 Canadian Nuclear Safety Commission help identify
23 what the differences are in the scientific
24 expectations of an environmental assessment study
25 as opposed to a research study and they are -- and

1 I did mention them previously, I will mention them
2 again -- that qualitative as well as quantitative
3 ways are permitted.

4 If I could just quote a letter,
5 since there was some quoting of letters from the
6 researchers of the WINGS study, the comment they
7 make is:

8 "Based on the results of the
9 WINGS Project we..."

10 That is to say the WINGS Project,

11 "...are more conservative and
12 cannot be this definitive in
13 concluding either whether
14 there is not or is an
15 effect."

16 That sums it up for me. An
17 environmental assessment by using qualitative
18 methods, in addition to quantitative methods by
19 relying upon the judgment and experience of the
20 technical specialists carrying out the assessment
21 is focused on likely effects as opposed to, in the
22 words of the researchers, more conservative and
23 definitive.

24 MR. BLYTH: Drs. Thompson and Bird
25 will respond on behalf of the staff.

1 DR. THOMPSON: Essentially the
2 assessment was done with available scientific
3 information, knowledge of how the systems at Bruce
4 behaved, knowledge that has been accumulated over
5 a number of years of operation. Similarly,
6 Ontario Power Generation, and before that, Ontario
7 Hydro, as we presented this morning, did extensive
8 work on populations of fish in and around the
9 Bruce area, to comply with their certificate of
10 approval. Over 15 to 20 years they have conducted
11 a number of research projects, extensive
12 measurements, held workshops with scientists in
13 the area, and in producing the report to the
14 Ontario Ministry of the Environment in 1999,
15 essentially concluded, because of the small amount
16 of fish that were being killed by the station,
17 less than 100 kilograms per year, that it was very
18 unlikely that the operation of the station would
19 have effects on either a local or a lake-wide
20 population.

21 The assessment that was done for
22 the Bruce A restart essentially comes to the same
23 conclusion. We recognize that there is
24 uncertainty in terms of the lake-wide population,
25 the impacts of various environmental stressors as

1 well as human activities on those fish
2 populations.

3 Essentially, the comfort is with
4 the relative significance of all those impacts.
5 Perhaps Glen Bird can provide some information in
6 terms of the biology of the lake-wide fish that
7 supported this conclusion.

8 DR. BIRD: First off, I would like
9 to say that the lake whitefish and the lake
10 whitefishery, the effects on the lake whitefishery
11 was specifically evaluated by CNSC staff using
12 information on their biology.

13 The WINGS program produced an
14 excellent review of the biology of these fish and
15 put forward a number of post-experiments to do
16 further studies on the effects of the facility on
17 fish in the near vicinity. But as pointed out
18 earlier, the environmental assessment is not a
19 research study, a rigorous research study that
20 produces hypotheses and tests them.

21 The environmental assessment is a
22 planning tool that looks at adverse effects on the
23 environment and uses scientific information and
24 follows a deductive process. Some of the
25 conclusions of no likely adverse effects on the

1 proposed project on the whitefish specifically
2 were based on information on the low use of the
3 area by both round whitefish and lake whitefish.
4 This is based on the low numbers of fish caught in
5 the nets and the larvae collected in the nursery
6 areas. We have data on the low numbers of fish
7 impinged from the WINGS report. Between 1984 and
8 1989, there was an average of 49 kilograms of
9 whitefish impinged per year.

10 If you compare this to the
11 commercial harvest in the area in which the Bruce
12 facility is situated, it is an area that stretches
13 from South Hampton to Point Clark, about an area
14 45 kilometres long, stretching north and south,
15 the commercial fishery in 1989 harvest 37,000
16 kilograms of fish. On the whole Lake Huron
17 proper, the value is 2.5 million kilograms of
18 fish. So, the mortality there was small.

19 Also, if you look at the available
20 spawning and nursery area that will be impacted by
21 Bruce A restart by thermal effects, this area is
22 very small, approximately 234 hectares, and that
23 compared to the very large area available for
24 spawning a nursery habitat to the north. There
25 are extensive shoals that go all the way up to the

1 tip of the Bruce peninsula.

2 Again, if you look at the history
3 of commercial harvest of lake whitefish in Lake
4 Huron proper, as pointed out by Patsy earlier,
5 there was a progressive increase in the population
6 and harvest by lake whitefish between 1974 to
7 1996, and an eight-fold increase over that period
8 of time, during which Bruce Power started up and
9 both Bruce A and B were operating.

10 So, if we would expect to have a
11 negative impact that is seen on the fishery, we
12 certainly would have seen it over those 20 years
13 and we wouldn't have seen an increase in the fish
14 population.

15 Another couple of points on the
16 fish biology.

17 Lake whitefish, when they are
18 selecting spawning habitat, they tend to clue on
19 to physical characteristics, the nature of the
20 substrate and the slope. Also, mark recapture
21 experiments have shown that individual fish will
22 spawn on different shoals in different years. So
23 you are talking about regional populations for the
24 lake whitefish. They're not going back to the
25 same rock and spawning every year.

1 THE CHAIRPERSON: I think that is
2 sufficient, Dr. Bird. I believe that that has
3 answered the question. Thank you very much.

4 Dr. Giroux has another question.

5 MEMBER GIROUX: This is a general
6 question. Thank you for the answers.

7 I would like to explore three
8 details. I think they can be dealt with briefly,
9 just to get a very good perspective on the issue
10 here.

11 The first one is a question of
12 adverse effects. Mr. Crawford, in the WINGS
13 report and what you said, you have said that you
14 cannot detect effects. You don't say that you
15 have detected adverse effects. Is that correct?

16 DR. CRAWFORD: Can you rephrase
17 that, please?

18 MEMBER GIROUX: Did you find any
19 adverse effects on lake whitefish?

20 DR. CRAWFORD: In the second of
21 the two major reviews that came from the WINGS
22 project, we looked at the hypothesized predicted
23 effects of nuclear generating stations on fish
24 populations in general. We found that lake
25 whitefish were vulnerable to impingement,

1 entrainment, high probability of effect for
2 whitefish that are affected by the plume. There
3 is also a possibility of having a significant
4 effect of migrating whitefish populations from
5 southern main basin up to the fishing and spawning
6 grounds.

7 MEMBER GIROUX: Thank you. The
8 second point, and this is again for Dr. Crawford
9 or Chief Akiwenzie, as you wish, you state that
10 the staff intentionally ignored the WINGS project.
11 Can you substantiate that statement? It is a
12 strong statement.

13 DR. CRAWFORD: I would not take
14 such a statement lightly. I would not have made
15 it if I was not convinced. I tried on several
16 occasions to get the CNSC to review this material
17 with us. I tried to get the CNSC to allow me to
18 give comments on the draft EA study report. I was
19 not allowed.

20 I tried several different ways to
21 get this WINGS project information into the
22 consideration and I find it strange that,
23 throughout the whole thing, it doesn't show up.

24 MEMBER GIROUX: Are you
25 maintaining that stance in view of the answers we

1 have been hearing for the past hour?

2 DR. CRAWFORD: Yes.

3 MEMBER GIROUX: Thank you. The
4 third point, the "do not cite" issue, you have
5 given us verbally and we had written an
6 explanation of this being addressed to the
7 advisory group and all that, but was that written
8 somewhere at the time that the report was
9 distributed? Was there a covering letter
10 explaining that the "do not cite" applied only to
11 the advisory group and that members could use the
12 information as they wished?

13 DR. CRAWFORD: When I spoke to
14 Professor Noakes specifically about this, he is of
15 the opinion that it was clear to the core group
16 when the "do not cite" was put on the material it
17 was sent out to the advisory group, it was
18 identified for their use. So it was identified
19 for them, that message.

20 I did not want to put him in a
21 position where he was going to say that it was
22 written down, but he feels, and I feel, that it
23 was known at the core group that it was for our
24 purposes.

25 I suppose the last thing to say on

1 that is that we did not receive any request from
2 Bruce Power to release the information either. We
3 would have done that. We wanted this information
4 to be used.

5 THE CHAIRPERSON: A very short
6 question, Mr. Graham.

7 MEMBER GRAHAM: Just for
8 clarification to the First Nations. What is your
9 annual harvest in kilograms of the lake whitefish?

10 DR. CRAWFORD: Lake whitefish
11 harvest for the past three years has exceeded
12 600,000 round kilograms. That is a conversion
13 from dress packed to round. It is the equivalent
14 of over 1.2 million pounds. That is split between
15 Georgian Bay and main basin, with the predominance
16 of the harvest coming in the main basin.

17 MEMBER GRAHAM: That is this First
18 Nation's harvest?

19 DR. CRAWFORD: There are two First
20 Nations that share treaty rights to that fishery,
21 the Saugeen First Nation and the Chippewas of
22 Nawash, known collectively the Saugeen Ojibwa.

23 THE CHAIRPERSON: Thank you very
24 much. I believe this is the first time that you
25 have been before the Commission. Thank you very

1 much for taking the time to put in your
2 intervention and also to be here today. We do
3 really appreciate that.

4

5 **02-H26.4**

6 **Oral presentation by Power Workers' Union**

7 THE CHAIRPERSON: Our next
8 intervention is from the Power Workers' Union, as
9 outlined in CMD document 02-H26.4. I believe that
10 the president, Mr. MacKinnon is with us today.
11 Mr. MacKinnon.

12 MR. MacKINNON: Madam President,
13 Members of the Commission, my name is Don
14 MacKinnon. I am President of the Power Workers'
15 Union. I have with me today on my immediate right
16 Dave Shier, our staff officer from our nuclear
17 sector, and on my immediate left Dennis Fly,
18 Sector Representative at the Bruce site and also
19 the PWU nominee to the Bruce Power Inc. Board of
20 Directors.

21 The Power Workers' Union
22 represents some 2300 members on the Bruce site.
23 It is also a limited partner in the new company,
24 Bruce Power. The employees represented by the PWU
25 at the Bruce site work in all facets of the

1 facility, including operations, administration,
2 maintenance, security, projects and modifications
3 and first line supervision.

4 PWU members represent the front
5 line of the day-to-day operations at the facility.
6 The vast majority of PWU represented employees at
7 Bruce live with their families in the immediate
8 surrounding community.

9 As per your direction on time,
10 Madam Chairperson, we have condensed our remarks
11 from our initial submission, which you have in
12 your possession. Our presentation to you will
13 consist of giving our view of the environmental
14 risk, update you on some of the current PWU and
15 Bruce Power joint efforts to continually improve
16 safety, a look at the path ahead, and finally our
17 view of the environmental screening report.

18 The health and safety of our
19 members has been one of the issues above all
20 others that has dominated the PWU's consciousness
21 throughout our 55-year history. Directly or
22 indirectly, any issue in relation to potential
23 adverse environmental impact from the facility
24 will also cause a potential adverse impact on the
25 safety and health of PWU represented workers at

1 Bruce NGS. For this reason, the PWU is as
2 concerned about environmental impacts as it is
3 about the on-the-job safety of our members.

4 Whether arising from the design,
5 condition, operation of equipment, work policies,
6 processes or practices, any deficiency which
7 creates the potential of a significant adverse
8 environmental impact will be first felt by PWU
9 members.

10 If you open up the Power Worker's
11 Union and Bruce Power Collective Agreement, you
12 will find something unique. The Bruce Power value
13 of safety first has been enshrined in the
14 following manner:

15 "Safety First is Bruce
16 Power's number one value.
17 The health and safety of
18 employees is a matter of
19 prime importance to both
20 parties. Overall safety
21 performance is also a
22 critical element in the
23 ongoing success of Bruce
24 Power."

25 There are many legislated safety

1 initiatives, such as Joint Health and Safety
2 Committees, right to refuse work, unilateral right
3 to stop work, et cetera, that are in place and
4 complied with vigorously in our work places.
5 However, some may end up being somewhat reactive
6 in nature.

7 In an effort to be proactive and
8 continuously improve safety, all site unions and
9 Bruce Power have initiated a new program called
10 Target Zero. This guiding coalition for safety
11 and health at Bruce Power was formed in May of
12 2002. This coalition includes management, the
13 Power Workers' Union, the Society of Energy
14 Professionals and the building trade unions. This
15 coalition of employer and all site unions has a
16 mandate to work together to develop a plan that
17 would take the business to zero injuries and
18 occupational illnesses.

19 The overall plan identifies six
20 focus areas that are key to achieving Target Zero
21 and six principles that will guide efforts and
22 behaviours to help us achieve Target Zero.

23 The focus areas are: Simply
24 safety which will target the need to simplify
25 processes that impact safety. Accountability will

1 create an environment where all staff accept
2 personal responsibility for our safety and the
3 safety of others; a learning culture that will
4 enable us to learn from ourselves and others to
5 prevent injuries occupational illnesses and loss.
6 Measuring progress targets our efforts and tracks
7 our progress. This requires meaningful, clear,
8 widely accepted proactive measures. Off-the-job
9 initiatives will focus on safety in our homes and
10 communities. The wellness/fitness focuses on the
11 need to have fit and healthy employees capable of
12 meeting the physical demands of the job.

13 The six guiding principles, and
14 you will see there are only five listed there, but
15 I will tell you what the sixth one is. It is an
16 omission in our production.

17 The guiding principles of Target
18 Zero are: Living our values, living with the five
19 Bruce Power values; excellence, targeting to be
20 the best; continuous learning, learning from your
21 experience and that of others; engagement of all
22 employees and stakeholders; safety coalition,
23 leadership, guidance and support from management
24 and union stakeholders; stay the course, ongoing
25 commitment to succeed despite expected setbacks.

1 The path ahead. Protecting the
2 environment will be an ongoing priority. Surface
3 and ground water testing will continue as an
4 ongoing monitoring program. Mitigation measures
5 were developed as part of the environmental
6 assessment. These measures themselves will be
7 monitored to assure their effectiveness. Routine
8 monitoring will be performed to determine the
9 effects of site operations on the environment,
10 both on and around the Bruce site.

11 Bruce Power environmental
12 management program is certified under the
13 international ISO 14001 standard. This ensures
14 that all monitoring programs are planned, carried
15 out and documented in a consistent manner.

16 In summary, the PWU supports the
17 analysis and the conclusions of CNSC staff as set
18 out in the screening report dated October 2002.
19 Specifically, the PWU supports the conclusion that
20 taking into account appropriate mitigation
21 measures, Bruce units 3 and 4 return to service
22 project is not likely to cause significant adverse
23 effects on the environment.

24 The CNSC should accept the
25 conclusions in the screening report and proceed to

1 a decision on the licence application at a
2 separate hearing. Thank you.

3 THE CHAIRPERSON: Thank you, Mr.
4 MacKinnon. The floor is now open for any
5 questions to Mr. MacKinnon from the Power Workers'
6 Union.

7 There are no questions. Thank you
8 very much.

9

10 **02-H26.5**

11 **Oral presentation by Citizens for Alternatives to**
12 **Chemical Contamination**

13 THE CHAIRPERSON: We will now move
14 to CMD 02-H26.5, which is from the Citizens for
15 Alternatives to Chemical Contamination.

16 Mrs. Kay Cumbow is with us today.
17 Welcome. I believe this is the first time that
18 you have been before the Commission, so, welcome.

19 MS CUMBOW: Thank you. My name is
20 Kay Cumbow. I am one of the Board of Directors of
21 CACC, Citizens for Alternatives to Chemical
22 Contamination, which has been around for 25 years,
23 a state-wide Michigan group concerned with the
24 environment. I also am a respiratory technician
25 by trade. I work at a hospital actually in Port

1 Huron, so I am downwind and downstream, maybe not
2 downwind all the time, but certainly some of the
3 time from the Bruce.

4 I am not an expert. With the
5 short deadline that we had this last time, the 30
6 days, it came at a very hard time for Michigan
7 environmentalists because we had a heated election
8 going on and we also had the Thanksgiving holidays
9 right there.

10 That is why you see a lack of
11 Michigan people here today, but I assure you that
12 in the future you are going to hear from Michigan
13 people.

14 I also got in the mail on Friday,
15 I believe it was this last Friday, from the CNSC,
16 it said that I had till the day before, which was
17 on Thursday, to get in any additional materials.
18 So, that is kind of disconcerting when you receive
19 by mail the invitation to have additional
20 materials the day before.

21 Michigan, we believe, not just
22 myself, but many, many people in Michigan believe
23 that we are stakeholders in what happens at the
24 Bruce. These are international waters. We share
25 international waters. Many, many Michigan

1 communities get drinking water from Lake Huron,
2 including the cities of Detroit, Flint, Port
3 Huron, but many, many more than that. We were
4 never contacted about any of the happenings at
5 Bruce.

6 So, I had some questions that were
7 never answered, I believe. One is the thermal
8 plume at Bruce. There is a photo that shows the
9 thermal plume reaching from Bruce down to Lake
10 Erie. Obviously, when you get to the St. Clair
11 River there are other people adding into that, but
12 where the thermal plume goes probably I would say
13 that radionuclides go, and a little goes a long
14 way. For one thing, a thermal plume will create
15 fog and radionuclides concentrate in fog ten times
16 more than in rain.

17 Rosalie Bertell, a long time ago,
18 showed that ocean water from nuclear underground
19 testing warmed up the ocean enough to make
20 typhoons possible. I believe that a thermal plume
21 that is big enough to stretch from the Bruce down
22 to the St. Clair River has effects on nature that
23 should be addressed.

24 I also wondered about the U.S.
25 safety team report. There was a U.S. team that

1 was invited up to look at the problems with Bruce
2 and Pickering. I did see that once and I don't
3 have it now, but I do know that they were
4 concerned with safety issues at the Bruce. Those
5 were dismissed in the report.

6 Another concern that we had was
7 tritium because tritium preferentially
8 incorporates into organic molecules. Potatoes,
9 for instance, are designated a critical food. It
10 has the greatest transfer factor. It was shown
11 that organic materials concentrate ten times
12 higher for cows that were fed contaminated grass
13 over cows that drank tritiated water, the same
14 amount in the water.

15 So, tritium does concentrate in
16 the food chain, and this is some concern to us
17 because it can become part of your DNA. A fetus,
18 at one point is one/600 thousandth time the weight
19 of the mother.

20 Another concern that we had was
21 krypton. The reason why we have a concern about
22 it is because there is a group called the Krypton
23 85 International Working Group. That group has
24 publicized, among other things, in the journal
25 Science in the United States. At the time that

1 was written was in the eighties. At that time
2 they said that all that was needed was a little
3 bit more in the atmosphere and you could see
4 lightening connect coast to coast in the United
5 States.

6 It also is known that if krypton
7 reaches 1 per cent of the maximum allowed in the
8 air, that measurable global changes in our weather
9 will occur. EDF in France stated that the
10 electrostatic effect a nuclear power plant only
11 reached the magnitude of a thunder storm front.

12 To have krypton dismissed, I guess
13 I would like to know a little bit more since
14 krypton is one of the noble gasses that is
15 released from the Bruce.

16 Leaking tubes and aging, it was
17 said that it was not a consideration in this whole
18 process, but if tubes from the steam generators
19 leak, then they affect by polluting water.

20 In 1991, there were 36 tons of
21 heavy water released from tubes into the lake, and
22 if this is true, they are now a whole lot older
23 and I think this should also be taken into
24 consideration.

25 Basically, we do not support the

1 restart of these old reactors. We just hope that
2 you, as Commissioners, take the health and
3 security of the environment and the peoples living
4 in the Great Lakes basin into consideration over
5 money or the desperate need for electricity.

6 We regret in Michigan that we have
7 neglected Lake Huron for so long. I can assure
8 you that this has ended. It is partly our fault
9 as well. There is no lake-wide management program
10 for Lake Huron. So there has not been the
11 attention paid to it as has been the other Great
12 Lakes.

13 I do not understand why the
14 concerns that the IJC has brought forth over this
15 last decade have not been addressed by the nuclear
16 power plants. The definition of persistent toxin
17 that they have taken on would encompass many, many
18 radionuclides released by the nuclear power plants
19 and their advice to all industry in the early
20 1990s was to phase out all radionuclides that met
21 their definition of persistent toxin.

22 One more thing and then I will
23 quit. I know that chlorine is used in large
24 amounts by all the nuclear power plants, including
25 Bruce. Chlorine affects other substances. What

1 it does is it combines readily with other
2 substances. It makes them longlasting, so very
3 difficult to break down. For instance, chlorine
4 will affect plutonium by making it 1500 more
5 soluble to the human body. That was in a book
6 called "Water Fit to Drink," that was in every
7 single Michigan library in the 1970s. I just
8 wonder if this kind of thing has been taken into
9 consideration.

10 I thank the Commission for your
11 time and consideration. I wish that I was better
12 prepared, and I wish that we had had time to
13 consult with experts. Thirty days is not very
14 long to look through the volume of work that we
15 had here. Thank you.

16 THE CHAIRPERSON: Thank you. The
17 floor is now open for questions.

18 Mr. Graham.

19 MEMBER GRAHAM: A couple of points
20 of clarification out of the statements made to
21 CNSC.

22 The plume that the intervenor has
23 discussed, is that correct that the plume does
24 reach to the St. Clair River and how far away
25 would that be?

1 MR. BLYTH: Dr. Thompson will
2 address that question.

3 DR. THOMPSON: The information we
4 have from the modelling that was done with
5 temperature measurements is that the thermal
6 plumes from Bruce A would extend one to two
7 kilometres off shore during warm water conditions,
8 and two to four kilometres or a little bit beyond
9 four kilometres during cold water conditions.

10 There is no thermal plume that
11 extends well beyond the site of Bruce and
12 certainly not to the St. Clair River.

13 MEMBER GRAHAM: Thank you. My
14 second question is: Was there a 30-ton
15 disbursement of heavy water in 1991 into the lake?
16 I am asking the CNSC staff. When we get these
17 statements I would like to follow up on them. Is
18 that a factual statement?

19 MR. BLYTH: We don't believe it is
20 a factual statement. I will get somebody to check
21 immediately.

22 MEMBER GRAHAM: One other question
23 that I have, and I don't know if it is relevant or
24 not, but when we talk about the plumes and so on,
25 are there any other nuclear power plants on Lake

1 Huron on the U.S. side? If you don't know, that
2 is quite all right, then.

3 MR. RIVERIN: I don't know.

4 THE CHAIRPERSON: Dr. Giroux.

5 MEMBER GIROUX: One question to
6 staff. The intervenor has referred to the
7 International Joint Commission's recommendation.
8 Could you tell us what is the applicability to
9 this EA?

10 DR. THOMPSON: The International
11 Joint Commission has issued two reports
12 essentially making recommendations that
13 radionuclides that meet the definition of
14 persistent toxic substances be dealt with as other
15 persistent toxic substances.

16 The Federal Government responded
17 to the International Joint Commission, saying that
18 this recommendation would not be followed
19 essentially because no radionuclides fell into the
20 category of persistent toxic substances. In 1995,
21 there were several workshops to try to define
22 criteria that would be used to categorize toxic
23 substances as persistent and bio cumulative
24 because management of toxic substances depend on
25 their characteristics, whether it is virtual

1 elimination or life cycle management.

2 The criteria that are now in the
3 Canadian Environmental Protection Act calls for
4 virtual elimination of substances that are toxic
5 that are persistent with criteria of a half life
6 and media greater than six months, as well as bio
7 cumulative, which means that the difference in
8 concentration between concentration in water and
9 fish is 5,000. So, it is quite a high bio
10 cumulation factor.

11 All the studies that have been
12 done of radionuclides released from nuclear power
13 plants indicate that their releases are not toxic.
14 There are no concentrations being released from
15 power plants that would cause effects on either
16 human health or the environment.

17 So they are not defined as toxic.
18 They are not bio cumulative. So, the IJC
19 recommendation and the management options in CEPA
20 would not apply in either case, either the IJC
21 recommendation of the Canadian Environmental
22 Protection Act.

23 THE CHAIRPERSON: Dr. Dosman.

24 MEMBER DOSMAN: Madam Chair, a
25 point of clarification from CNSC staff to confirm

1 the date at which the announcement of this hearing
2 went on the CNSC website.

3 MR. RIVERIN: I believe the notice
4 was issued by the secretariat on the 20th of
5 September for this hearing.

6 THE CHAIRPERSON: Thank you very
7 much. I do realize that you travelled quite a
8 ways to be here today, so thank you very much.

9 MS CUMBOW: Can I respond?

10 THE CHAIRPERSON: No, not to the
11 questions precisely, in terms of the information.
12 Is there a comment you would like to make with
13 regard to something specific?

14 MS CUMBOW: The comment about the
15 36 tons of heavy water that were lost at Bruce A
16 mostly due to steam generator tube leaks during
17 1991, that was a comment that was taken from
18 Atomic Energy Control Board, BMD 92-142 July 28,
19 1992, Table A-1.

20 THE CHAIRPERSON: Thank you very
21 much. That is very helpful for clarification.
22 Thank you very much for coming.

23 We are now going to take a ten-
24 minute break.

25 --- Upon recessing at 4:45 p.m.

1 --- Upon resuming at 4:55 p.m.

2

3 **02-H26.6**

4 **Oral presentation by South Bruce Impact Advisory**
5 **Committee**

6 THE CHAIRPERSON: We will now then
7 move to the next submission, which is an oral
8 presentation from the South Bruce Impact Advisory
9 Committee as outlined in CMD document 02-H26.6.

10 I believe the Chair of the
11 Committee is with us today, Mr. Ribey. We have
12 had a opportunity to hear from you before.
13 Welcome, sir.

14 MR. RIBEY: Thank you, Madam
15 Chair, members of the Canadian Nuclear Safety
16 Commission.

17 First, may I take this opportunity
18 to thank you for the opportunity to comment on the
19 environmental assessment of the proposed restart
20 of units 3 and 4 of the Bruce A Nuclear Generating
21 Station and introduce the Impact Advisory
22 Committee's make up for the Bruce area.

23 The IAC is composed of elected
24 representatives of the municipalities of Arran
25 Elderslie, Brockton, Huron Kinloss, Kincardine,

1 Saugeen Shores and the County of Bruce. Of these
2 five lower tier municipalities, they make up most
3 of the 50 kilometre area that was in the study
4 area.

5 Our committee also has
6 representation from Bruce Power, the Western Waste
7 Management Operations, and the Bruce Community
8 Future Development Corporation.

9 We have been meeting almost
10 monthly for a period of time to discuss issues and
11 opportunities for the operation of the Bruce site.
12 Today, our comments will be confined to the
13 environmental assessment of the proposed restart
14 of units 3 and 4 of Bruce A. We have reviewed the
15 draft screening report prepared by CNSC staff from
16 the public consultation document provided by
17 Golder Associates on behalf of Bruce Power.

18 We wish to commend your staff on
19 the contents of the report explaining the various
20 issues studied and the resources and sources of
21 information for consideration by you, the board.
22 The IAC has been very involved in the assessment
23 review from the beginning of the process. Duncan
24 Moffett of Golder Associates attended our July 26,
25 2001 meeting to provide us with the scope of the

1 project and steps to be taken for the process.

2 Members of our committee also
3 attended various open house sessions during the
4 process. One only has to refer to Chapter 11 of
5 the public and stakeholder programs, pages 68 to
6 71, to realize the opportunities for public
7 participation during this review, and we did take
8 part in most of those sessions.

9 Section 11.2, "Key Comments,
10 Issues and Responses" indicates the concerns
11 raised during the consultation, and we refer you
12 specifically to page 80 under 'Public
13 Consultation" where suggestions were made that
14 newsletters should address major concerns;
15 examples, health concerns, alternative energies,
16 waste management and terrorism. The response of
17 your staff being:

18 "The third newsletter
19 reported the environmental
20 assessment conclusions that,
21 of the 123 likely
22 environmental effects
23 identified, only four were
24 found to result in adverse
25 residual effects, and that

1 none of those were found to
2 be significant."

3 The study has dealt with vast
4 numbers of issues in regards to human, aquatic and
5 terrestrial health. These are very important
6 issues. It has been demonstrated in the past that
7 nature, mankind and nuclear energy can prosper in
8 harmony when safety and accountability is
9 considered paramount at the Bruce site. Bruce
10 Power has demonstrated these virtues on a number
11 of projects either initiated or partnered in our
12 area.

13 The socioeconomic conditions are
14 also a very important aspect of the study and have
15 a huge impact on the Bruce community, as well as
16 the direct employment on the site. The spin-off
17 of the rehabilitation of units 3 and 4 was
18 conveyed to the IAC on october 21, 2002, when it
19 was reported that the low value acquisition
20 process initiated by Bruce Power equates to over
21 \$180,000 a month of new business for commercial
22 enterprises in the Municipalities of Kincardine
23 and Saugeen Shores. It has been demonstrated that
24 property values will increase, municipal and
25 education facilities will be better utilized, and

1 economic development will advance in the 50-
2 kilometre radius of the study area.

3 Bruce Power has demonstrated its
4 community spirit by being a major donor in the
5 medical clinics of Saugeen Shores and Kincardine,
6 as well as area hospitals and health charities
7 that depend on local support.

8 The conclusion on page 82 of the
9 environmental assessment study report says that:

10 "On the basis of its review
11 of the documentation received
12 to date, the CNSC staff
13 concludes, taking into
14 account the findings of the
15 Environmental Assessment
16 Study Report, including the
17 identified mitigation
18 measures, that the restart of
19 Bruce A Units 3 and 4 is not
20 likely to cause significant
21 adverse effects on the
22 environment."

23 This is a welcome statement to the
24 majority of the residents of Bruce community and
25 one that is fully supported by the Impact Advisory

1 Committee.

2 Madam Chair, members of the
3 Canadian Nuclear Safety Commission, we request
4 that you endorse the findings of this report and
5 approve the environmental assessment report as
6 presented. Thank you.

7 THE CHAIRPERSON: Thank you very
8 much, sir. The floor is now open for questions
9 from the Commission Members.

10 Dr. Giroux.

11 MEMBER GIROUX: Briefly, we heard
12 earlier from Mayor Kraemer that he had no calls
13 from constituents concerning the restart and no
14 position manifested to him. But what is the
15 experience of your committee? You are in contact
16 with citizens and there are people who are opposed
17 to the restart. Do you have any information from
18 them?

19 MR. RIBEY: We certainly have our
20 doubters in our community, the same as every
21 community does, sir. But those who favour the
22 project and are supportive of the nuclear energy
23 far outweigh those that are objectors to it.

24 THE CHAIRPERSON: Any further
25 questions? Thank you very much.

1

2 **02-H26.7 / 02-H26.7A**3 **Oral presentation by Citizens for Renewable Energy**

4 THE CHAIRPERSON: We will now move
5 to the intervention of the Citizens for Renewal
6 Energy, as outlined in CMD document 02-H26.7 and
7 02-H26.7A, which is supplementary information. We
8 welcome Mr. Ziggy Kleinau, Coordinator for
9 Citizens for Renewal Energy.

10 Mr. Kleinau.

11 MR. KLEINAU: Thank you for giving
12 us the time for intervention. I would like to
13 introduce Dr. Peter Bursztyn. He is with me
14 today. He is a chemist, actually has a degree in
15 Physics and Physiology. He has worked 22 years in
16 university academic. The last 14 years he worked
17 as a chemist. Right now he is employed by the
18 Brass Corp. North America Limited as a technical
19 manager.

20 Also, as part of our presentation,
21 I would like to introduce Peter Nelson. He is a
22 professional engineer, retired now, from
23 Gloucester. He just recently attended the CSIA,
24 the Canadian Solar Industry Association annual
25 event here in Ottawa. So, he is really a promoter

1 of renewable energy.

2 Madam Chair, I am not very good in
3 time keeping, so maybe you could give me a warning
4 for a minute or two, please.

5 There has been quite a bit of talk
6 about public consultation. I have to reiterate
7 again that originally we were called key
8 stakeholders. Citizens for Renewable Energy is a
9 non-profit organization. We have been around for
10 seven years. We represent a lot of people in
11 close proximity of the Bruce nuclear plant.

12 In the environmental assessment
13 consultation, there were several instances where
14 we had to prod for instance Mr. Hegarty to begin
15 with and then Mr. Houssemann to get information.
16 Also, we asked to be put on the mailing list, and
17 we did receive some material, but I am pretty sure
18 that we were left out with quite a number of
19 information materials.

20 The issues that haven't been
21 addressed in the environmental assessment
22 screening report, this is something of great
23 concern to us. We are really at a loss as to why
24 there wasn't greater scrutiny in the different
25 parts of the environmental assessment by the CNSC

1 staff.

2 They just completely went along
3 with the endorsement of this EA. Throughout the
4 whole process of dealing with the project
5 proposals, CNSC staff has made every effort to
6 speed up proceedings to accommodate the proponent.
7 I hope you all have a copy of the Grey-Bruce this
8 week, August 2, 2002 publication, where there was
9 an interview with Bruce Power CEO Duncan
10 Hawthorne. We filed this as evidence.

11 Bruce Power is actually saying, oh
12 yes, we have been making kind of an impression on
13 the CNSC staff that we need to have this done and
14 over with, and the intervenors were left
15 struggling with tight timelines and huge volumes
16 to review and repeated requests for extensions
17 were declined. Where is the fairness that the
18 CNSC prides itself on?

19 Also shown in this interview is
20 that Bruce is diluting its work force by moving
21 operators from the B section to the A section.
22 Also, according to statements by Mr. Hawthorne,
23 1,000 workers are eligible to retire by the time
24 the two reactors are to be restarted and not
25 enough rehires to make up for the shortfall, so,

1 and I quote, "processes have to be changed to
2 improve plant efficiency."

3 That sounds very familiar to
4 British Energy's way of cutting costs in the U.K.
5 plants to the point that the nuclear installations
6 inspectorate had to step in and force safety
7 regulations.

8 Not just manpower is being diluted
9 by Bruce Power, but financial resources will be
10 stressed beyond the limits as the proponents will
11 have to face an increased shutdown guarantee
12 funding with two additional reactors fuelled and
13 possibly being restarted.

14 There has always been said in
15 these submissions that there is a need for this
16 extra power, this extra electricity from Bruce A.
17 But what about how reliable are these reactors?
18 Twenty-five years old, not being retubed, and the
19 other situation is this power, this electricity,
20 are we sure that it is going to go to benefit
21 Ontario or even Canada? As a private operator,
22 through the open market they can sell wherever
23 they get the highest price for their electricity.
24 There have already been hints that it might go
25 south of the border.

1 We reject the interventions of the
2 Power Workers' Union and the Society of Energy
3 Professionals because they are partners in this
4 business and they are biased. Thereby, we don't
5 think they are admissible as evidence in your
6 considerations.

7 We also notice that there are
8 written submissions by two MPs, one MPP. We
9 looked at the election results and we can say that
10 they don't even represent 50 per cent of the
11 constituents because definitely, according to the
12 election results, more people were actually voting
13 against them than voted for them.

14 As far as the February 14th date
15 is concerned, that is a very important date
16 because it is Valentine's Day. It has been coming
17 up quite a bit in the news. We just wonder if
18 there is going to be another sweetheart deal made
19 to try and keep this power plant going. We wonder
20 who is going to be the next operator.

21 The way completely valid
22 objections to the evaluation of possible adverse
23 effects were addressed by the CNSC EA persons and
24 endorsed by staff defies any logic.

25 The degree of uncertainty with the

1 assessment of effects is heightened by the fact
2 that staff was unwilling to include fires in their
3 accident scenarios and the availability and
4 readiness of prevention and firefighting
5 provisions, as well as mitigation of effects.

6 Maybe Bruce Power is going to put
7 signs up "Lightening strikes are not permitted."
8 There has been quite a talk about hydrazine in
9 this deliberation, and I would like to call on Dr.
10 Bursztyn to talk about some properties of
11 hydrazine that haven't been addressed as far as
12 fire danger is concerned.

13 DR. BURSZTYN: This is Peter
14 Bursztyn. I was just looking up hydrazine in a
15 public database that is accessible to anybody in
16 this room, if they know how to find it and know
17 how to read it. It strikes me that it might be
18 misunderstood.

19 Hydrazine has a flash point of 38
20 degrees centigrade. This is the flammability
21 measure that is used by fire departments, by the
22 Transport of Dangerous Goods authority and by the
23 WHMIS people. So in other words, this flashpoint
24 does not strike when it is being particularly
25 anxiety provoking. It is about the same as the

1 flash point of diesel people.

2 There are two other measures of
3 flammability which are not so commonly used. In
4 those two measures, hydrazine is spectacularly
5 flammable. In one particular case, it has
6 flammability limits that I have never come across
7 before in any of the MSDSs I have written. It is
8 flammable from 2.9 per cent atmospheric
9 concentration up to 98 per cent air concentration.
10 I understand that once set alight it will continue
11 to burn in the absence of oxygen completely
12 because then it will simply decompose.

13 So that makes it more flammable
14 than hydrogen, more flammable than natural gas on
15 the measure of flammability limits.

16 Just to give you an example of a
17 common substance that everybody is familiar with,
18 gasoline has a flammability limit of approximately
19 7 per cent to 12 per cent. If you have more than
20 12 per cent in the air, it won't burn; if you have
21 less than 7 per cent in the air, it won't burn.
22 So, flammability limit from 2.9 per cent to 98.8
23 per cent is pretty spectacular.

24 The other flammability measure
25 that is sometimes used with auto ignition

1 temperature. The auto ignition temperature is
2 listed at 270 degrees centigrade, which is quite
3 low but not alarmingly so, until you realize that
4 they have made this measure on glass. If you make
5 the measure on other substances, the auto ignition
6 temperature drops to as low as 23 degrees
7 centigrade. Twenty-three degrees centigrade is
8 the temperature of the palm of your hand. What is
9 this exotic substance on which hydrazine will
10 ignite, self-ignite without the benefit of a match
11 at 23 degrees centigrade. Any guesses out here?
12 It is rust, ordinary iron oxide.

13 I have only one more other thing
14 to say here.

15 MR. KLEINAU: I have to cut you
16 off.

17 DR. BURSZTYN: Okay, I am going to
18 stop.

19 MR. KLEINAU: In regards to 02-
20 H26.19, we would like to make the Commission aware
21 of at least seven of the intervening parties
22 requesting referral to the Minister for a referral
23 to a review panel are coalitions of multiple
24 organizations. The presenters for these
25 coalitions are conveying the serious concerns of

1 not thousands, not ten thousands, nor several
2 hundred thousand individuals. We need to remind
3 the Commission that to dismiss this huge outburst
4 of public concern as negligible and not to refer
5 this project, environmental assessment, to the
6 Minister would be in violation of the Foundation
7 of the Canadian Environmental Assessment Act and
8 unconscionable.

9 We have a letter here, it is a
10 very short letter, signed by the Executive
11 Director of the Sierra Club of Canada. Maybe I
12 can read those three sentences.

13 THE CHAIRPERSON: Yes, I will just
14 confer with my lawyer.

15 MR. KLEINAU: Okay.

16 --- Pause.

17 THE CHAIRPERSON: Because of the
18 transparency requirements of the Commission, we
19 will need a copy, Mr. Kleinau, of the letter. Are
20 you comfortable with that if you read it?

21 MR. KLEINAU: Yes, that is fine.

22 THE CHAIRPERSON: Go ahead.

23 MR. KLEINAU: It is:

24 "Re: Proposed restart of
25 Units 3 and 4 at the Bruce

1 Nuclear Station.

2 Dear President and Members of

3 the Commission: On behalf of

4 the Sierra Club of Canada, I

5 would like to voice our

6 support for the submission

7 made by Citizens for

8 Renewable Energy. The Sierra

9 Club of Canada shares CFRE's

10 concerns in regard to the

11 possibility of mitigating

12 effects from restarting these

13 25 year old reactors. We

14 support, then, the request by

15 CFRE that the Commission

16 refer the environmental

17 assessment on the proposed

18 restart of units 3 and 4 of

19 the Bruce Nuclear Station to

20 the Minister for a full panel

21 review.

22 Thank you for taking our

23 concerns into consideration.

24 Sincerely, Elizabeth May,

25 Executive Director, the

StenoTran

1 Sierra Club of Canada."

2 THE CHAIRPERSON: Thank you, Mr.
3 Kleinau. I would like to note that the Sierra
4 Club knows quite well the Commission. I think
5 that they do understand the processes in which
6 they should be forwarding interventions into the
7 Commission that way.

8 Thank you very much. The floor is
9 now open for questions. Dr. Dosman.

10 MEMBER DOSMAN: Madam Chair, I
11 would just like to inquire of Mr. Hawthorne
12 concerning the suggestion in paragraph 4 of this
13 submission concerning the fact that "1,000 workers
14 are eligible to retire at the time the two
15 reactors are to be restarted and not enough
16 rehires to make up the shortfall."

17 Would you please clarify on that
18 quote of you, Mr. Hawthorne?

19 MR. HAWTHORNE: Sure. Clearly
20 this would be a matter that would be examined in
21 more detail at the licensing hearings, but let me
22 try and give you a view.

23 Since Bruce Power took over this
24 facility, we have increased the staffing levels on
25 site by 360 people. We inherited a site that had

1 a very skewed demographic. There had been no real
2 recruitment of staff for the last seven or eight
3 years. We sought to address that by recruiting
4 actively young people to help to refresh our work
5 force.

6 The general position that we have
7 is that this site for a four-unit operation, which
8 is what it is at this point in time, is grossly
9 overstaffed. Everyone understands that because
10 the site was at one time a much larger facility
11 and the numbers haven't gone down in a very major
12 way since then.

13 What we have sought to do here is
14 to try and do two things. One, to allow people
15 who want to retire to leave; two, to capture their
16 experience before they do; and three, to, in a
17 very aggressive way, bring younger people in. We
18 had an average age of 49 when we acquired the
19 site. Today the average age is 45. To do that in
20 a three and a half thousand site requires a very
21 aggressive recruitment strategy.

22 The key message that we have is
23 that we intend to run this facility as a six-unit
24 facility. As such, general view would be that the
25 right number of staff to run that is probably

1 about 2,600. We currently have about 3,300.

2 What we intend to do over the next
3 five years, and we do have a five-year capability
4 plan, is to aggressively recruit and train young
5 people and we have a very aggressive program to do
6 that, including apprenticeship training programs
7 and partnerships with colleges and universities to
8 actually allow people to retire and to refresh the
9 work force with new younger people with a longer
10 working life.

11 Ultimately, yes, we do believe it
12 will result in fewer staff on the site, but that
13 is not an aggressive cutting of staff. It is a
14 recognition that the site is overstaffed, and it
15 is also a recognition that we have to actively
16 recruit young people to keep our workforce going
17 for the long term.

18 THE CHAIRPERSON: Are there any
19 other questions?

20 Ms MacLachlan.

21 MEMBER MacLACHLAN: I would like
22 Bruce Power to respond to the information that was
23 raised on the flammability of hydrazine.

24 MR. HAWTHORNE: I wouldn't dispute
25 for a minute the technical accuracy of what was

1 just said there. People need to understand that
2 we actually use hydrazine in an aqueous solution,
3 35 per cent aqueous solution. That is how it is
4 used on the site. I don't dispute the properties
5 of raw hydrazine, but we have no such thing on
6 site. So there is no flammability risk; there is
7 no flammability feature in hydrazine in an aqueous
8 solution, which is how it is used on our facility.

9 MEMBER MacLACHLAN: But what are
10 the potential problems if it is air borne in the
11 event of an accident or malfunction in the context
12 of the environmental assessment that we were
13 talking about earlier?

14 MR. HAWTHORNE: We may have
15 answered that earlier when we talked about
16 hydrazine at some length and we talked about the
17 potential during boiler blowdowns. What happens
18 is during our biannually outage period we actually
19 take units out of service for inspection, et
20 cetera. One of the things we do there is actually
21 blow down the boilers, and at that point there is
22 some degree of hydrazine release.

23 The general message that has come
24 through in both the staff's review and our own
25 review is that the levels of hydrazine actually

1 emitted to the atmosphere during those times are
2 very far below any standards that apply in this
3 case.

4 MEMBER MacLACHLAN: But from a
5 technical perspective, have you got somebody who
6 would comment on release of hydrazine to the air
7 and if it does have a very low flammability rate
8 in reflect of rust, are people's vehicles or
9 whatever in jeopardy of going up in flames? I
10 would like it in context.

11 THE CHAIRPERSON: I would like to
12 reinforce that we did discuss this at some length
13 earlier. So, we will allow for a future answer,
14 but I do believe that the transcripts will show
15 that.

16 Would you like to do that?

17 MR. MOFFETT: Hydrazine in a water
18 solution is added to the boilers. It is not
19 flammable. Its purpose is to scavenge oxygen from
20 the water in the boilers so it is economically and
21 technically beneficial to retain it in the boilers
22 and not lose it out the stack. It is a potential
23 human carcinogen when air borne. It has a very
24 short half life in the atmosphere. It decays
25 naturally in the atmosphere.

1 The limit at the point of
2 impingement, an annual average limit at the point
3 of impingement is set by the Ministry of the
4 Environment. The station in our modelling clearly
5 meets that. There is no limit set for a short-
6 term exposure. We used occupational information
7 and extrapolated that and can confidently predict
8 that the risk to any individual as a result of a
9 short-term exposure to hydrazine at the fence line
10 of the Bruce Power site is below any risk that is
11 considered of concern.

12 THE CHAIRPERSON: Would you like
13 to have a follow-up question, Ms MacLachlan?

14 MEMBER MacLACHLAN: Just to be
15 clear on that, I think the issue that was raised
16 was flammability, not human health. The medium
17 was rust. That is the issue that was raised, and
18 I was wondering if you could address that,
19 airborne.

20 MR. MOFFETT: Maybe Mr. Hawthorne
21 is correct that a non-doctor needs to explain
22 this.

23 Because it has been the presence
24 in steam, because it is present in the site as a
25 35 per cent water solution, there is no

1 opportunity. It has zero flash point. It is not
2 flammable at any point where it is used on the
3 Bruce Power site.

4 The raw material itself, hydrazine
5 itself, is. But hydrazine is not used on the
6 site. What is used on the site is stable, non-
7 flammable and is used in levels to reduce oxygen
8 in the boilers to prevent rusting, et cetera, in
9 the boiler.

10 Does that answer?

11 THE CHAIRPERSON: Yes, Mr.
12 Kleinau.

13 MR. KLEINAU: Could I ask Dr.
14 Bursztyn to because he kind of confirmed that the
15 hydrazine is being brought in in an undiluted
16 state, and I have heard a lot about spills from
17 unloading that have happened at these plants.

18 THE CHAIRPERSON: I will give some
19 leeway here. I am concerned that we are getting
20 very far off the topic of the hearing today.

21 Very short, and I will pay quite
22 close attention to this.

23 DR. BURSZTYN: I was under the
24 impression that the material was stored on the
25 site in its relatively pure form.

1 THE CHAIRPERSON: And the answer
2 is, Mr. Hawthorne?

3 MR. HAWTHORNE: No.

4 THE CHAIRPERSON: Thank you. Dr.
5 Giroux.

6 MEMBER GIROUX: Two questions, Mr.
7 Kleinau. The first one you say in the first brief
8 that we received that you protest the arbitrary
9 interpretation of CEAA which is made by staff.
10 Could you explain to us in what way this is
11 arbitrary and do you mean that they go beyond
12 their rights and responsibilities?

13 MR. KLEINAU: I can use this
14 example as far as fire hazards are concerned
15 because I imagine the Commission recognizes that
16 only earlier this year they found it necessary to
17 include a number of licence conditions on the
18 western waste management facility.

19 Not to address the possibility of
20 fires in an accident scenario, in our opinion, it
21 is really something that you are picking something
22 that we can explain and something where we don't
23 have to go into any detail as far as fire
24 protection is concerned or fire prevention. We
25 will just let that go and let the Commission work

1 on it after the units have been refuelled. At
2 that point, I don't see any way that this could be
3 properly addressed. It has to be done in an
4 environmental assessment.

5 MEMBER GIROUX: Could staff
6 respond?

7 MR. BLYTH: Fire hazard assessment
8 was performed as part of the return to service
9 study for Bruce units 3 and 4. As a result of
10 that and as a result of improvement programs,
11 improved fire detection, protection and
12 extinguishing is being installed at the plant.
13 Capability for shutting down and monitoring the
14 plant in the event of a fire that incapacitates
15 the main control room has also been added as part
16 of the restart project.

17 So, we feel that fire has been
18 treated seriously. I would also add that when we
19 talked about the ex-plant release categories and
20 the event that was chosen to calculate off-site
21 consequences, my assessment would be that that in
22 terms of offsite radiological consequences is
23 probably far more severe than you would expect
24 from a fire, given that that is a very sudden
25 event with a rapid release. So, the plant doesn't

1 shutdown or has just shutdown. You have a lot of
2 short-lived fission products in the release,
3 whereas slow revolution to the time you get to a
4 potential threat to a reactor and much more time
5 for the short-lived fission products to decay.

6 I believe staff is satisfied that
7 it has been adequately addressed.

8 MEMBER GIROUX: Thank you. To Mr.
9 Kleinau again. We have several intervenors who
10 have argued in the written briefs at least about
11 the importance of having 1500 megawatts of
12 electricity back in the network some time in the
13 coming year and claiming socioeconomic benefits.

14 What are your views on this?

15 MR. KLEINAU: We certainly are
16 very doubtful for one thing that these reactors 25
17 years old, not being retubed, not having major
18 component restructuring being done, that they can
19 produce this 1500 megawatts reliably.

20 The other thing is, and I pointed
21 that out before, is this power actually going to
22 go to Ontario or is it going to go south of the
23 border? They are paying a lot higher prices down
24 there. A private company is definitely always
25 looking for the highest profit, especially under

1 the scenario with British Energy being in very bad
2 financial shape. That is something we need to
3 find out. We are very doubtful that this is going
4 to happen that we have a reliable supply and
5 supply that goes to the Ontario or Canadian
6 citizens.

7 THE CHAIRPERSON: I would like to
8 make it clear that the mandate of the Commission
9 does not extend to energy supply or energy supply
10 issues. So, I want to clarify that, that that is
11 not in the mandate of this Commission to discuss
12 or to decide any proposal based on those
13 considerations.

14 Are there any other questions for
15 Mr. Kleinau?

16 Thank you very much, sir.

17

18 **02-H26.8**

19 **Oral presentation by The Society of Energy**
20 **Professionals**

21 THE CHAIRPERSON: We would like
22 now to move to the Society of Energy Professionals
23 as noted in CMD 02-H26.8. I believe that Mr. Bob
24 Wells is with us today.

25 Mr. Wells, the floor is yours.

1 MR. WELLS: Thank you, Madam Chair
2 and Members of the Commission.

3 My name is Bob Wells. I am a Unit
4 Director at the Bruce nuclear site. I am happy
5 here today to represent the Society of Energy
6 Professionals which is consisting of 800
7 engineers, scientists and supervisors that work at
8 the Bruce site.

9 We are very pleased to be able to
10 speak in support of approval of the current Bruce
11 A restart assessment. I take exception to some
12 previous comments that we might be seen as biased.
13 Rather, we, as the technical specialists that work
14 at the plant, see ourselves as very technically
15 knowledgeable of the process, the business and the
16 management there, and we are very supportive of
17 nuclear power as an option because we see its
18 benefit to society as a whole and Ontario
19 specifically, as has the Power Workers' Union, who
20 also works there and knows this business in
21 detail.

22 We believe that the environmental
23 assessment that you have before you is actually a
24 very well-detailed, exhaustive report and probably
25 one of the best that has been done on Ontario

1 nuclear facilities in a long time. So, we are
2 very confident in the detail there that we see.

3 Recognizing Madam chairman's
4 comments on the supply of electricity being out of
5 the scope, if she would indulge me only to comment
6 that we too see that 1500 megawatts of carbon free
7 electricity in Ontario is very positive for the
8 overall environment. We know that overall nuclear
9 power is net positive compared to other sources of
10 generation.

11 The Bruce nuclear plant,
12 specifically Bruce A, have already operated on
13 that site for 25 years. After all these years,
14 experience and evidence shows that there is indeed
15 no significant systemic adverse impact from
16 nuclear power. The environmental assessments on
17 some new green field projects have to look forward
18 only and hypothesize or predict what might be the
19 impacts. We have at this site the benefit of 25
20 years of experience that we can actually analyze
21 and see what the actual track record has been. It
22 has been positive for the quality of life in
23 Ontario and the quality of life in Bruce County.

24 Bruce Power has been very open and
25 proactive in our community about environmental

1 issues in general and specifically, in this
2 environmental assessment, they have been very open
3 and forthcoming to the populace as a whole as they
4 have solicited comments from all walks of life.

5 Those hearings have confirmed what
6 we already know, that the very large vast majority
7 of the population in that area is supportive of
8 nuclear power and very at ease with it.

9 Inside the plant, as employees, we
10 have seen due diligence stewardship by management
11 in their efforts to preserve the environment and
12 also to preserve their assets. We have seen that
13 ISO 14001 has been successfully implemented and
14 every worker in the organization trained.

15 We have seen an employer that is
16 engaging the work force to take ownership in the
17 plant and enterprise. From what we have seen
18 firsthand, we are confident that this management
19 has integrity on environmental issues and a
20 commitment to do the right things in the future.

21 We, as the employees, all live
22 near these plants. We live here ourselves and our
23 children are growing up in this community and we
24 hope will stay in that community. So, we have a
25 very strong vested interest with the population at

1 large and our interests are the very same as
2 theirs.

3 In the overview, we encourage the
4 Commission to endorse this environmental
5 assessment, both because of the merits that it has
6 in itself technically and the way it has reviewed
7 the issues at hand, but also for the benefit of
8 the environment at large that these new 1500
9 megawatts will bring of carbon free electricity.

10 Thank you.

11 THE CHAIRPERSON: Thank you very
12 much. The floor is now open for questions from
13 the Commission Members. Thank you very much, sir.

14

15 **02-H26.9**

16 **Oral presentation by County of Bruce**

17 THE CHAIRPERSON: We will now move
18 on to CMD 02-H26.9, which is from the County of
19 Bruce and it is Mr. Mark Kraemer.

20 MR. MARK KRAEMER: Thank you,
21 Madam President and Members of the Commission.

22 It is with great pleasure that I
23 sit before you here today representing the
24 citizens of the County of Bruce, but I must tell
25 you right out of the gate I am neither a

1 professional nor scientist nor do I carry any
2 doctoral degree of any measure. But what I am
3 here today to do is to acknowledge the fact that
4 you have my written submission and you have I hope
5 read that, and I am going to speak to you today as
6 nothing other than a simple resident of one of the
7 finest counties in the Province of Ontario, that
8 being the County of Bruce.

9 Unfortunately, I have to preface
10 this with a comment that I do not agree with some
11 of the previous submissions that have been made to
12 you today, specifically from our neighbours across
13 Lake Huron and with all due respect to Ziggy and
14 to those who have spoken against the issue
15 surrounding this environmental assessment, I must
16 leave you with this thought or let you start with
17 this thought.

18 If we are to prepare for the
19 future adequately, we must sufficiently understand
20 the past. I can assure you there is no host
21 municipality anywhere in Canada, with the possible
22 exception of Chalk River, that has more experience
23 with nuclear power and more specifically with a
24 CANDU system of generation of electricity in the
25 Province of Ontario.

1 For you must recall that Douglas
2 Point was really determined at the time to be an
3 experimental reactor. I shutter to use
4 "experimental" with the word "reactor," but you
5 will recall that Douglas Point was built in Bruce
6 County and it was specifically located there for
7 one very significant reason and that was that the
8 geological surveys done identified Douglas Point
9 as one of the most sound locations for the launch
10 of nuclear power in the Province of Ontario.

11 From Douglas Point grew the
12 commercial aspect of nuclear power generation for
13 consumption of electricity to fuel the growth of
14 this fair province we live in. To take you
15 through the history, for those that may not be
16 resident in our fair province, it then spawned the
17 original construction of Bruce A that we speak of
18 today which, through the success of that project,
19 lent itself to allow the construction of its
20 sister station called Bruce B such that we were
21 now in the possession of eight 800 megawatt
22 reactors representing the largest producing
23 nuclear facility in the world.

24 That is a staggering thing for us
25 to have as our history. But, more importantly, I

1 think you need to visit this issue in the light of
2 40 years we have lived with nuclear in Bruce
3 county. In 40 years the environmental issues
4 around nuclear were all, I think, very well
5 identified by people not dissimilar to yourself
6 involved in regulation, in licensing of operation
7 and most certainly involved in environmental
8 reviews right out of the gate for the original
9 operation.

10 I think you people and your
11 predecessors have done your job extraordinary
12 well. The reason being is that the flower and
13 fauna of the Bruce has never been better. I can
14 speak to you as their outgoing warden and tell you
15 that we have adopted this branding thing, and the
16 name and the slogan that we use for all of Bruce
17 County is "The Natural Retreat."

18 The impact of nuclear power on
19 Bruce County has been nothing but positive. The
20 growth of the animal population specifically on
21 the Bruce has done nothing but grow, which would
22 seem to say to me that if there is an impact it is
23 difficult to perceive when the deer population
24 continues to expand I must say almost
25 exponentially.

1 The flower and fauna varieties
2 that are evident and are actually protected by the
3 operators over the years is second to none and
4 provides great diversity for the employees to
5 enjoy on their break periods.

6 The history of operators of the
7 Bruce is now somewhat given to folklore and
8 history through Ontario Hydro, on to its successor
9 of OPG, and to the blackest day in the history of
10 the Bruce in 1997 when they announced the closure
11 of Bruce A. Recognizing that our three main
12 industries in our county are, in order of dollar
13 contributions to our economy, nuclear generation,
14 agriculture and tourism, and for us to lose 50 per
15 cent of our available generation through the
16 closure of Bruce A was probably the most
17 significantly damaging thing any company could do
18 to the economy of Bruce County.

19 But, we did persevere. We did
20 survive. We did object vociferously, I might add,
21 to the closure for all of the reasons that now we
22 have been vindicated for as they move forward to
23 bring back Pickering A. But I will leave that for
24 another day, Madam President.

25 The reality is OPG voluntarily

1 shutdown two productive reactors that could have
2 continued to provide safe, efficient, affordable
3 electricity 1997 for the benefit of the people of
4 the Province of Ontario. They voluntarily walked
5 away from that particular generating facility
6 because of an analysis that they did of assets
7 that was presented to the people of Ontario with
8 the NAOP or Nuclear Asset Optimization Plan. This
9 was authorized by one Carl Andognini and was
10 endorsed by the Board of Directors of Ontario
11 Hydro, who subsequently shutdown Bruce A, much to
12 the chagrin of the people at home. We fought and
13 we lost, but in the final analysis we really won
14 because from the ashes of Bruce A and the closure
15 and the doom and the gloom of 1998 rose an
16 opportunity under Bill 35 that said we believe, as
17 people of the Province of Ontario and as the
18 ruling government of the time, that it is prudent
19 to divests the government from the monopolistic
20 role of production of electricity in this
21 province. Ergo, came the opportunity to say, we
22 have an asset called Bruce A that has real value
23 and that has real value in the marketplace, and
24 from that proposal came British Energy who,
25 through their process of incorporation, and coming

1 to Canada doing their due diligence, spawned the
2 company called Bruce Power that sits before you
3 today.

4 We have, in the past 40 years,
5 developed a relationship with the operators of the
6 Bruce Nuclear Power Development that has been
7 second to none. The degree of disclosure and the
8 partnership mentality that has evolved from the
9 operation of the Bruce is second to none when you
10 look at community versus large corporate entity.

11 The main concern that we had going
12 forward under Bill 35 was who was going to operate
13 Bruce A, who were these people that were coming to
14 our town under the name of Bruce Power? I can
15 assure you much discussion was had around who was
16 going to operate it, but, more importantly, we
17 wanted to know the moral fabric of these people
18 because, first and foremost, we do enjoy a
19 lifestyle that is second to none, and we are not
20 prepared, nor will we move forward with a
21 mentality that says we will sacrifice lifestyle
22 and the future of our grandchildren for the
23 almighty dollar.

24 The issues that are fundamental to
25 the life that we like and the lifestyle that we

1 enjoy are that we will gladly reap the benefits of
2 nuclear production, but we will not do so at all
3 costs.

4 I can tell you today, and I sit
5 before you in all honesty, and tell you that the
6 integrity displayed by the people of Bruce Power,
7 and more specifically by the gentlemen seated in
8 front of you, has done nothing but assure us that
9 there will be and can be a continuity of the
10 comfort that we have enjoyed for the past 40 years
11 dealing with our predecessor companies, not just
12 in their ability to safely operate this site, but
13 also in their fundamental mentality and the
14 motivation that they have to secure a reasonable,
15 a safe, and to mitigate all outstanding issues
16 around environment impact that they have the
17 ability to mitigate in the generation of nuclear
18 power.

19 If you doubt their motivation, you
20 must realize that the majority of the management
21 structure at Bruce Power were not from Bruce
22 County. These people -- these men and these women
23 -- have moved to Canada, have moved to Ontario
24 but, more importantly, they have moved to my town.
25 If you believe that they are prepared to operate

1 Bruce A in anything less than an environmentally
2 safe manner, do you honestly believe they would
3 move their families resident in the neighbouring
4 communities and risk their own health and safety
5 of not just them, but their families and their
6 children?

7 I suggest to you that what we
8 have, from where I sit as a local representative
9 of our local people is a company that recognizes
10 not just the human impact that they can have in
11 terms of community impact, both economically and
12 socially, but they have also recognized the
13 biophysical aspect of their involvement in
14 Ontario. To me, being your humble servant today,
15 it would seem that it is far superior to the
16 people of the Province of Ontario to generate
17 power by nuclear than to generate it by coal or
18 fossil fuel.

19 That, Madam President, concludes
20 my comments.

21 THE CHAIRPERSON: Thank you very
22 much. Are there any comments or questions? Thank
23 you very much, sir.

24 02-H26.20

25 Oral presentation by Canadian Nuclear Association

1 THE CHAIRPERSON: We will now move
2 on to CMD 02-H26.20, which is the Canadian Nuclear
3 Association and Mr. Al Shpyth. Just for
4 clarification for those people who are watching
5 the numbers, we are going to be doing all the
6 orals first. The Canadian Nuclear Association.

7 MR. SHPYTH: Thank you, Madam
8 President and Members of the Commission for the
9 opportunity to speak.

10 For the record my name is Al
11 Shpyth. I am the Canadian Nuclear Association's
12 Director of Regulatory and Environmental Affairs.

13 With your consent and recognition
14 of the time, I would like to summarize our
15 previously submitted oral presentation,
16 recognizing, however, I do not want that to be
17 seen in any way to be giving short attention to
18 the efforts either of the Commission staff or of
19 the Bruce Power officials who have worked so hard
20 on preparing the environmental assessment report
21 that you are considering today.

22 With your consent I will summarize
23 our submission.

24 The Canadian Nuclear Association
25 is encouraging the Commission to find the

1 environmental assessment study report to be
2 acceptable on the basis of its comprehensiveness
3 and thoroughness, and on the basis of the report's
4 findings, allow this project to proceed to
5 licensing.

6 We believe you can do that for a
7 number of reasons, including that Bruce Power has
8 substantive management programs in place to safely
9 restart and operate the two A units and keep the
10 likelihood of significant and adverse
11 environmental effects low.

12 The overall finding of the
13 environmental assessment study report and the
14 efforts of the Commission staff confirm the
15 likelihood of very low environmental impact. The
16 restart and operation of the two Bruce A units
17 provide us with a significant greenhouse gas
18 avoidance opportunity.

19 Finally, I believe it can be
20 recognized as a real need for additional sources
21 of electricity in Ontario and the timely restart
22 and operation of the Bruce units would contribute
23 to meeting that need.

24 With this summary, I would like to
25 conclude my comments and be pleased to take your

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1 questions or comments.

2 THE CHAIRPERSON: Thank you very
3 much, Mr. Shpyth. I would like to reinforce that
4 your written submission has been distributed to
5 Commission Members and is available to them.

6 Are there questions or comments
7 from the Commission Members? Thank you very much.

8

9 **02-H26.21**

10 **Oral presentation by Coalition for a Nuclear Free**
11 **Great Lakes**

12 THE CHAIRPERSON: We are now going
13 to try to connect via teleconference. The next
14 intervention is from the Coalition for a Nuclear
15 Free Great Lakes as outlined and we have Mr.
16 Michael J. Keegan via teleconference. Mr. Keegan,
17 we have put aside ten minutes, if you aware of
18 that for intervention. The floor is yours, sir.

19 MR. KEEGAN: The Coalition
20 strongly urges the Canadian Nuclear Safety
21 Commission to refer this project assessment to the
22 Minister of the Environment for an independent
23 review panel, environmental assessment pursuant to
24 section 25 of the Canadian Environmental
25 Assessment Act. The Coalition stands in protest

1 of the inadequacy of the truncated period to
2 review voluminous documents pertaining to the
3 restart of Bruce nuclear units and the hearing
4 process. We had requested an extension of comment
5 period of 60 days. That has been denied.

6 I am testifying here today for the
7 necessity to fully explore alternative power
8 generation other than restart of Bruce 3 and 4
9 units must be examined. This examination must
10 utilize principles of full cost accounting in
11 assessing the cost benefit of returning Bruce 3
12 and 4 to power production.

13 The conservation programs
14 conducted in the mid-nineties had such great
15 success that Ontario Hydro squelched them. In the
16 opinion of many, termination occurred because
17 these conservation efforts threatened the
18 rationale for continued reliance on Bruce,
19 Darlington and Pickering. These conservation
20 programs should be revisited.

21 In the early nineties, a call went
22 out from Ontario Hydro to assess availability of
23 electricity from co-generation. A response of
24 2,000 megawatts was expected. What Ontario Hydro
25 received in response was nearly 9,000 megawatts of

1 electricity could be developed from co-generation.
2 These programs should be revisited and
3 counterweighed against the restart of Bruce units
4 3 and 4.

5 Because of the additional
6 generation of tritium and the impact on the Great
7 Lakes water shed, independent monitoring must be
8 established which will be accessible to routine
9 public inspection. In conjunction with
10 radiological monitoring, there is a need for
11 baseline health studies and the monitoring of
12 health for radiological impacts. The Coalition is
13 particularly concerned about the need for full
14 retubing of these reactors. The original
15 engineering design called for retubing of reactors
16 at mid life, which was one half of 40 years or 20
17 years. These reactors are well beyond that half
18 point and are beyond the design basis for
19 retubing.

20 I would point out that the owners
21 of Indian Point reactor in New York knew that
22 there was a need to retube but deferred the
23 overall until a tube ruptured in early year 2000.
24 For the Canadian Nuclear Safety Commission to
25 wilfully allow these plants to operate while it is

1 known that they are in need of retubing is, in the
2 opinion of the Coalition, to be criminal action by
3 the Canadian Nuclear Safety Commission and British
4 Energy. Full exploration of retubing, partial,
5 and non-retubing under consideration of the Bruce
6 nuclear units must be investigated thoroughly.
7 The potential of cascading tube failures must be
8 addressed. The extent to which Inconel 600 and
9 alloy 600 is in use at Bruce A and C must be
10 disclosed and thoroughly examined under full a
11 independent review panel environmental assessment
12 pursuant to Section 25 of the Canadian
13 Environmental Assessment Act.

14 This particular alloy 600 has been
15 problematic throughout the nuclear industry. In
16 addition, these nuclear units must be scrutinized
17 for safety ramifications associated with aging
18 reactors.

19 Because the parent company,
20 British Energy, is financially strained, there
21 will be great economic pressure to keep these
22 plants in production and to defer the maintenance
23 and, consequently, compromise public safety.
24 Independent oversight is essential to preclude
25 this. The EA screening process does not provide

1 for this. Recent history indicates that there
2 have been major inadequacies at the Bruce Nuclear
3 Power Station. In an article which appeared in
4 the Globe and Mail on October 15, 2001, page A1,
5 environmental reporter, Martin Middlestat,
6 chronicled a long list of problems at the Bruce
7 Nuclear Power Station. I will submit those to you
8 via e-mail rather than review them all, but they
9 include inexperience, sloppy work habits, poor
10 maintenance, increased chances of dangerous
11 accidents at Bruce Nuclear Power Station, the
12 world's largest atomic facility said a secret
13 report obtained by the Globe and Mail.

14 There are problems at Bruce, and
15 there are tremendous economic pressures on British
16 Energy to move forward. Of particular concern I
17 have is the notion of the utilization of mox fuel,
18 mixed oxide fuel, and I would like to get a
19 definitive answer from the Commission as to what
20 is the intent, if there is any, and what is the
21 potential for the use of mox? Is that under
22 consideration?

23 My understanding of reviewing the
24 documents was that it would only require an
25 amendment that would allow for mox fuel to be

1 utilized. I am particularly concerned about the
2 civil liberty ramifications of the utilization of
3 plutonium fuel on both sides of the border. I am
4 concerned about Bruce Energy setting up a
5 circumstance, essentially T-ing up a very
6 dangerous situation for any potential terrorist
7 attack.

8 They are storing on the shores
9 plans for 20,000 tons of high level nuclear waste
10 now come to additional reactors.

11 The restart of Bruce A units 3 and
12 4 would preclude the use of these spent fuel pools
13 for the storage of high level nuclear waste from
14 Bruce B. If they utilize those fuel pools for the
15 storage of fuel, there would not be a need to move
16 to the dry cast storage and set up a dangerous
17 situation.

18 I have several other comments but
19 I believe that I am approaching my time
20 limitation.

21 I would like to point out that as
22 a baseline, I live in Monroe, Michigan, home of
23 the Fermi Nuclear Power Plant. The NRC
24 commissioned a study for worst case accident in
25 1980, the results of which suggested \$136 billion

1 in property damage at the Fermi, 340,000 injuries,
2 13,000 cancers, 8,000 immediate deaths. Now, that
3 was one reactor. You have the potential for six
4 reactors at Bruce, up to eight reactors, plus you
5 are bringing in 20,000 metric tons of waste. You
6 are loading the dice and you are loading the gun
7 and, in my opinion, you are an accomplice to a
8 potential criminal act.

9 So I want to hear definitively on
10 these issues that I have raised, particularly
11 about the mox fuel and the potential for that, and
12 essentially establishing a security police state.

13 That concludes my comments.

14 THE CHAIRPERSON: Thank you very
15 much. I assume you will hold on as we go through
16 the question and answer period of the issues that
17 are raised by your intervention.

18 Dr. Giroux.

19 MEMBER GIROUX: I have two
20 questions for staff. The first one concerns the
21 request for an extension of the deadlines to
22 submit comments. This intervenor requests 60 days
23 beyond the date that documents are posted. I
24 think I have read or heard another intervenor
25 requesting 120 days. Could staff respond

1 generally on the organization of time lines and
2 the periods allowed for comments?

3 MR. RIVERIN: The time lines for
4 review, the draft screening report was made public
5 on the 15th of August and six weeks were allocated
6 for comments to be sent. This is consistent with
7 time lines given for reviews under CEAA for
8 comprehensive studies.

9 Furthermore, there was a further
10 notice for intervention at this hearing. It is
11 felt by staff that adequate time had been provided
12 for review.

13 MEMBER GIROUX: This is in line
14 with the usual periods that intervenors have for
15 comments on different issues that come before the
16 Commission?

17 MR. BLYTH: Yes, is consistent.
18 If anything, it is longer. I would like to remind
19 the Commission Members, as well, that there was a
20 public consultation with respect to the scope of
21 the environmental assessment.

22 So staff went well beyond what was
23 legally required in terms of consultation for this
24 kind of environmental assessment screening report.

25 MEMBER GIROUX: Thank you. The

1 second question is the issue of the mox fuel which
2 has been raised by the intervenor. This isn't
3 addressed in the assessment that we have before
4 us. Could staff comment on any intentions of
5 using mox fuel?

6 MR. BLYTH: I would suggest that
7 Mr. Hawthorne should comment.

8 It is our understanding that there
9 is no intention to use mox fuel, but I think Mr.
10 Hawthorne should address the question.

11 THE CHAIRPERSON: That is fine,
12 Mr. Blyth, but he will have to come back to
13 comment on the licensing requirements for that.

14 MR. HAWTHORNE: It is certainly
15 not my intention to use mox fuel, no. There is no
16 intention to do so.

17 MR. BLYTH: Certainly, if for some
18 reason, some unforeseen reason, there was a
19 proposal to use mox fuel, we would be looking at a
20 whole new set of environmental assessments. We
21 would be looking at a significant change to the
22 licence. We would be looking at a series of
23 hearings in front of this Commission almost
24 certainly.

25 That is not a decision that would

1 be taken by staff acting independently of the
2 Commission, and it is not a decision that would be
3 taken casually, I am certain, by this Commission,
4 as well.

5 There would be an extensive public
6 consultation around the issue of mox fuel.

7 MEMBER GIROUX: Your expectation
8 is that there would be a new environmental
9 assessment to go to mox fuel?

10 MR. BLYTH: It would certainly
11 have to be revisited because there would be the
12 issue of transporting the fuel which is not
13 included in this environmental assessment. It is
14 a significant change in the operation of the
15 plant. So I cannot see how we could avoid at
16 least bringing out into public for reasons of
17 transparency and good regulation that this was
18 going on, and a public consultation would be
19 needed on it.

20 Certainly in my mind elements of
21 the EA would have to be revised.

22 MEMBER GIROUX: Could I be more
23 specific. Would there be, in your view, a trigger
24 under CEAA?

25 MR. BLYTH: I will defer to my

1 CEAA expert, Mr. Riverin.

2 MR. RIVERIN: If an amendment is
3 required to the licence, depending on the
4 amendment required, then if it is under CEAA law
5 list regulation and any amendment under 24(2) of
6 the Nuclear Safety Control Act is a trigger for
7 the Canadian Environmental Assessment Act.
8 Therefore, it is only assumed that if there was
9 such a decision required, it would trigger the
10 Canadian Environmental assessment Act.

11 THE CHAIRPERSON: Dr. McDill.

12 MEMBER McDILL: Thank you. Could
13 Bruce comment on the design life requirement for
14 retubing guideline that was referred to by the
15 intervenor, suggesting that retubing was required
16 at half of the life of the reactor?

17 MR. HAWTHORNE: Obviously one of
18 the things we said today is there are a number of
19 regulatory approvals we have to go through. The
20 next series of hearings are licensing hearings.
21 We have provided significant information to the
22 CNSC staff to support this.

23 It is very clear to us that part
24 of the fitness for service will be a further
25 investigation as to the fitness for service of all

1 of the reactor components.

2 MEMBER McDILL: Thank you.

3 Although it is not part of your responsibility,
4 the Fermi reactor referred to by the intervenor is
5 a light water reactor as opposed to the CANDU
6 facility?

7 MR. HAWTHORNE: That is correct,
8 yes.

9 MEMBER McDILL: Thank you.

10 THE CHAIRPERSON: Yes, Mr. Graham.

11 MEMBER GRAHAM: I think most of
12 the issues have been clarified with the exception
13 of the 20,000 tons of new waste that would be
14 brought on site. Would CNSC staff care to
15 comment?

16 THE CHAIRPERSON: I am sorry, Mr.
17 Graham, I don't think that is within the scope of
18 this project. That has to do with waste
19 management. So it is not within the scope of
20 this. Is that correct? Mr. Blyth.

21 MR. BLYTH: Staff have to clarify
22 this. This is waste that is on site right now.
23 It is waste that was produced in the Bruce
24 reactors. It is fuel bundles that are stored in
25 spent fuel bays at Bruce. We are not bringing

1 nuclear waste, high level waste from around the
2 province into this site.

3 We are talking about Bruce, where
4 it was produced, and it is currently stored at
5 Bruce and we are putting it into a more secure,
6 long-term storage configuration.

7 THE CHAIRPERSON: Could you
8 identify the scope of this particular hearing and
9 how waste has a role in the EA for assessment for
10 the restart of Bruce A? I don't understand that.

11 MR. BLYTH: I don't believe it
12 does.

13 THE CHAIRPERSON: Thank you. I
14 would like to keep the topic as the hearing that
15 is before us today.

16 Ms MacLachlan.

17 MEMBER MacLACHLAN: Just on the
18 issue of mox fuel, is the CANDU reactor of the
19 type that is at Bruce A capable of using mox fuel
20 as a fuel as opposed to natural uranium?

21 MR. HAWTHORNE: I believe part of
22 the rationale for the questioning, because it did
23 arise during our original licensing, was the fact
24 that some years ago there was a feasibility study
25 conducted which looked at the potential for

1 burning mox fuel. It was clear at that time that
2 the potential existed for mox fuel to be burned at
3 Bruce A. It required a number of modifications.
4 It certainly required a significant revisit to the
5 safety case, but it was not technically ruled
6 impossible. In fact, if there was indeed an
7 intent to burn mox fuel, one could argue that the
8 Bruce A facility would have been one of the more
9 obvious choices in that regard.

10 Clearly, my message today is that
11 Bruce Power has no intention, no intention
12 whatsoever of burning mox fuel in this facility.

13 THE CHAIRPERSON: Are there any
14 other questions? Thank you, Mr. Keegan for
15 joining us by teleconference.

16

17 **02-H26.22**

18 **Oral presentation by Nuclear Information and**
19 **Resource Service**

20 THE CHAIRPERSON: I would now like
21 to go on to CMD 02-H26.22, which is Mr. Kevin
22 Kamps from the Nuclear Information and Resource
23 Service. Mr. Kamps is also joining us by
24 teleconference. Mr. Kamps, are you there? The
25 floor is yours, sir.

1 MR. KAMPS: My name is Kevin Kamps
2 and good evening to the Commission and to everyone
3 in attendance.

4 I am with Nuclear Information and
5 Resource Service in Washington, D.C., NIRS for
6 short. NIRS has members on both sides of the
7 border through the Great Lakes basin. On behalf
8 of our members, NIRS submits the following
9 comments on the proposed restart of Bruce nuclear
10 A reactors 3 and 4.

11 I have several points I would like
12 to make. I will try to move through them quickly,
13 given the late hour. The first is on the
14 terrorist threat. The second is on harmful
15 consequences of catastrophes and routine releases.
16 The third is on British Energy's financial
17 situation and Bruce Power's consequent uncertain
18 future, and then some other points after that.

19 On the terrorist threat, earlier
20 today accident scenarios with probabilities of one
21 in a million or one in 10 million chance of
22 occurrence were discussed. While we cannot know
23 the probability of a terrorist attack upon the
24 Bruce nuclear plant, it is certainly significant
25 to address the threat. It is quite remarkable

1 that terrorist threats to Bruce have been
2 arbitrarily determined as outside the scope of
3 this EA we are discussing today. Yet those very
4 terrorist threats are the elephant sitting in the
5 middle of the room which we are supposed to ignore
6 and not talk about.

7 It is most ironic that the
8 environmental assessment start date for the Bruce
9 reactors restart was September 11, 2001. Recent
10 news articles highlight the danger of terrorist
11 attacks upon nuclear reactors and radioactive
12 waste storage depots. In June of this year,
13 threats of radiological dirty bombs grabbed
14 headlines after the arrest of an alleged Al Quada
15 dirty bomber about to begin his scouting mission.

16 In September, an interview with Al
17 Quada leaders revealed that the original targets
18 for the September 11th terrorist attacks upon the
19 United States may have been nuclear facilities.
20 On November 6, the New Brunswick Telegraph Journal
21 reported that Mounties protecting the Point
22 Lepreau reactor were burnt out. This begs the
23 question: What is the state of security at Bruce?

24 The most recent Al Quada taped
25 threat aired on the Arab satellite television

1 network Al Jazeera a month ago, recorded Osama Bin
2 Ladin's voice explicitly naming Canada as a
3 potential target for a future terrorist attack.
4 Also, in mid November, on the eve of U.S.
5 Secretary of State Colin Powell's visit, Canada's
6 National Post reported on a leaked U.S. government
7 listing 22 potential terrorist targets in Canada,
8 including the Pickering, Point Lepreau and Chalk
9 River nuclear facilities. Bruce was conspicuous
10 by its absence.

11 Just yesterday, the Calgary Herald
12 ran the headline "Terrorists Will Target Canada,
13 Royal Canadian Mounted Police fears retaliation if
14 U.S. attacks." In recent days, headlines
15 announced that U.S. troops would be allowed to
16 enter Canadian territory to counter a terrorist
17 strike. Thus, to the cost column for nuclear
18 power must be added loss of sovereignty and policy
19 state tactics.

20 The restarting of Bruce A reactors
21 3 and 4 would aggravate an already high
22 concentration of nuclear risk on the shoreline of
23 Lake Huron.

24 My second point is about harmful
25 consequences of catastrophes and even routine

1 releases. It is quite incredible that the EA
2 claims that even a major reactor accident would
3 have no long-lasting significant impact on the
4 environment or public health at Bruce. Just look
5 at a real world nuclear catastrophe: Chernoble.
6 The woefully inadequate attempts to deal with
7 Chernoble have cost hundreds of billions of
8 dollars, but have barely scratched the surface of
9 what is needed. The extent of human suffering and
10 ecological ruination, still ongoing in the
11 aftermath of Chernoble, is a story that goes
12 largely untold to this day.

13 Harmful radioactive contamination
14 around Chernoble extends out many hundreds of
15 miles from the destroyed reactor, a distance well
16 beyond what is considered in the Bruce Power
17 environmental assessment screening report.
18 Radioactive contamination of the food supply and
19 regions suffering Chernoble fallout will persist
20 for centuries, again well beyond the time period
21 considered in the EA screening report.

22 Even routine releases from normal
23 operations at the Bruce A reactors will have
24 harmful human health and ecological consequences.
25 Tritium routinely released into Lake Huron, for

1 example, would be ingested by humans in their
2 drinking water and food grown in the area.
3 Tritium can replace natural hydrogen anywhere in
4 the human body right down to the level of DNA,
5 where it can cause genetic damage. Tritium has a
6 12-year half life, meaning it retains its hazard
7 for decades into the future.

8 Although Bruce Power claims that
9 nuclear power is environmentally friendly, it
10 fails to acknowledge the harm caused to human
11 health and the environment from uranium mining and
12 processing, toxic and radioactive releases from
13 routine reactor operations, and atomic waste
14 generation. Such releases of toxins and
15 radioactivity into Lake Huron flies in the face of
16 the International Joint Commission's call for
17 virtual elimination and zero discharge of
18 persistent toxic emissions into the Great Lakes.

19 First Nations often bear the brunt
20 of the harmful consequences of nuclear power.
21 Uranium mining at Serpent River First Nation on
22 the shore of Lake Huron is an example of this.
23 Bruce Power's environmental assessment has ignored
24 the fact that the First Nations near Bruce have a
25 traditional diet that makes them even more

1 vulnerable to harm from radiation than other
2 populations. The claim from Bruce Power's
3 representatives that impacts on First Nations
4 health will be looked at during the EA follow-up
5 program is simply unacceptable. It amounts to
6 little more than nuclear experimentation on the
7 health of human beings.

8 To add to the earlier discussion
9 about impingement, entrainment, thermal pollution,
10 et cetera, and the effects on fisheries, I would
11 like to enter into the official record a copy of a
12 report prepared by my organization, which is
13 entitled "Licensed to Kill." This report
14 documents how the nuclear reactors at Bruce can
15 destroy aquatic wildlife and habitat and how
16 regulatory processes allow this to happen. This
17 report can shed some more light on the impact of
18 the Bruce restart upon First Nation fisheries in
19 Lake Huron.

20 My next point is about Bruce
21 Energy's financial meltdown and Bruce Power
22 uncertain future. Bruce Power's majority owner,
23 British Energy, is still in desperate financial
24 states. BE is now in a rush to offload its share
25 in Bruce Power as quickly as possible. Companies

1 that may take over the operations of Bruce Power
2 include a uranium mining firm and a pipeline firm,
3 none of which have experience running reactors.
4 This is not a solid foundation upon which to
5 restart additional reactors at Bruce.

6 The danger is that major short
7 cuts on safety will be taken in order to save
8 money such as cutting safety staff levels to the
9 bone.

10 This has been documented at
11 British Energy Atomic Reactors in the U.K. by the
12 U.K. Nuclear Installations Inspectorate. There
13 is also the danger of not performing needed
14 repairs and maintenance. Desperate financial
15 pressures for electricity production, combined
16 with age related degradation and short cuts on
17 safety, would result in potentially catastrophic
18 risk taking. Given the current chaos, the rush
19 towards restart and the validity of assumptions
20 about Bruce Power's operations should all be
21 seriously reconsidered.

22 I would like to address the point
23 of the merit of the proposal of restarting the
24 reactors.

25 Has the Bruce restart been driven

1 by an ill-conceived effort to export profits to
2 Great Britain and export electricity to the United
3 States? Our organization recently learned of a
4 proposal called Lake Erie link to run electricity
5 transmission lines from Ontario to the United
6 States under Lake Erie. A spokesman for the
7 proposed Lake Erie link admitted that over 50 per
8 cent of the electricity would originate from
9 Ontario's nuclear reactors.

10 My next point is that U.S.
11 citizens groups have been systematically placed at
12 a severe disadvantage in this process. Bruce
13 Power's representatives earlier bragged about
14 their extensive outreach to members of the public,
15 but such efforts completely ignored and neglected
16 the public on the U.S. side of the border, leaving
17 us in the dark. For its part, the CNSC has not
18 offered to fund the efforts of concerned U.S.
19 citizens groups to hire technical experts to
20 analyze the proposed restart's environmental
21 impacts. Quite to the contrary, the CNSC even
22 refused to extend the public comment period 60
23 days.

24 It seems that Bruce Power's bottom
25 line is driving this process at a very high speed.

1 In conclusion, Bruce Power and
2 CNSC's conclusion that there would be no
3 significant effects of the restart on the
4 environment is false. There would be significant
5 effects downwind and downstream in both the U.S.
6 and Canada throughout the Great Lakes basin. For
7 these reasons, the EA should be subjected to a
8 full panel review, independent of Bruce Power and
9 CNSC.

10 Thank you.

11 THE CHAIRPERSON: Thank you.
12 Before I open the floor for questions, I would
13 like to inform you, Mr. Kamps that your offer of a
14 document cannot be accepted. The rules of
15 procedure for the CNSC require full transparency
16 which means that any document that we receive has
17 to be available to all intervenors and the
18 licensee. So we will be unable to accept that
19 document.

20 However, I am now going to open
21 the floor for questions from the Commission
22 Members.

23 Mr. Graham.

24 MEMBER GRAHAM: Just a point of
25 clarification. There were a couple of subjects

1 brought up in this intervention that were
2 addressed in previous interventions and we don't
3 want the intervenor to think that we are not
4 asking questions regarding mox fuel, regarding the
5 120 days and so on. Those were dealt with in
6 earlier interventions. Just so that he realizes
7 that those have been addressed, he can get that in
8 the transcripts.

9 THE CHAIRPERSON: Thank you, Mr.
10 Graham. That is a helpful clarification.

11 Mr. Kamps, another point that I
12 just wanted to make is that the policies of the
13 CNSC do not fund separate experts for intervenors,
14 including travel. This applies equally to
15 Canadian and to American intervenors. So it is
16 just a point of clarification for your
17 information.

18 Are there any other further
19 questions or comments?

20 Dr. McDill.

21 MEMBER McDILL: This intervenor
22 has asked a specific question in his submission
23 and I think it is worth recording it. He asks:

24 "Has the CNSC undertaken a
25 technical study similar to

1 the October 2000 U.S. Nuclear
2 Regulatory Commission study
3 on irradiated storage pool
4 fire dangers?"

5 That might be worth answering,
6 perhaps having staff answer that.

7 MR. BLYTH: No such study has
8 taken place in Canada. The design of the
9 irradiated fuel bays is somewhat different and the
10 challenge, because we have on-power refuelling, we
11 don't have a situation where we put an entire
12 fresh core into a bay at one time. So that the
13 heat load is lower as well.

14 MEMBER McDILL: Thank you.

15 THE CHAIRPERSON: With regards to
16 your security concerns, Mr. Kamps, you are correct
17 in that the scoping of the study, the Commission
18 specifically looked at the issues of security and
19 since security of the Canadian reactors is covered
20 by an emergency order and security issues are
21 dealt with only in camera in the CNSC, that matter
22 will not be discussed further. That does not mean
23 that we haven't regarded your comments and that
24 has already been dealt with in the scoping of the
25 environmental assessment.

1 Thank you very much, sir.

2

3 **02-H26.16 / 02-H26.16A**

4 **Oral presentation by Great Lakes United**

5 THE CHAIRPERSON: I will now move
6 from the next intervention which is from Great
7 Lakes United, as outlined in CMD 02-H26.16A. This
8 is a supplement to 16. It is to be an oral
9 presentation by Great Lakes United. And my
10 understanding, Mr. Kleinau, is that you will be
11 presenting on behalf of Great Lakes United. Is
12 that correct, sir?

13 MR. KLEINAU: Yes, that is
14 correct.

15 THE CHAIRPERSON: The floor is
16 yours.

17 MR. KLEINAU: Thank you very much,
18 Madam Chair, Members of the Commission.

19 I was asked by Ms Wooster, the
20 Executive Director of Great Lakes United, who was
21 unable to come from Buffalo to do the
22 representation on her behalf.

23 I am the Director on the board of
24 Great Lakes United for Lake Huron. We thank you
25 for the opportunity to make a submission

1 concerning the screening report for the
2 environmental assessment on the proposed restart
3 of the Bruce A reactors 3 and 4. Great Lakes
4 United, GLU, is an international coalition of over
5 160 Canadian, American and First Nation member
6 organizations representing hundreds of thousands
7 of individuals in the Great Lake basin.

8 I have the 2001-2002 annual report
9 here. Unfortunately only one copy, but it lists
10 all the organizations here. I would like to leave
11 it for the members. This is just one supporting
12 document. Actually, there is at least 52
13 organizations from Ontario part of this coalition.

14 Great Lakes United has previously
15 submitted a brief on the draft screening report
16 for this project proposal in which we express
17 serious concerns on a limited scope and the
18 optimistic assumptions of the draft. In the CNSC
19 screening report released October 2002, none of
20 our concerns were answered and no changes to the
21 report were deemed necessary by the editors.

22 In fact, all of the 28 public
23 submissions were dismissed as not relevant enough
24 to require any changes in the screening report.
25 One wonders why the Commission even bothers

1 allowing the public to comment.

2 We fully concur with the concerns
3 of the Ministry of Environment that the proponent
4 may be violating the federal Fisheries Act if
5 discharges of deleterious substances to the
6 discharge channel and to Canadian fisheries waters
7 are not vigorously controlled. That is comment
8 6.1 on page 3.

9 Together, with the Ministry's
10 recommendation in comment 6.2, page 3, we call for
11 a reduction in the size and temperature of the
12 thermal plume through the application of available
13 best technology. We request that the Commission
14 insist on the proponent's complying with indeed
15 bettering the Canadian water quality guidelines
16 criteria for protection of fresh water aquatic
17 life from thermal impacts at the point of
18 discharge.

19 In no way do we accept CNSC
20 staff's assurance that because of the similarity
21 of Bruce A to Bruce B reactors, the Bruce B risk
22 assessment can reasonably be used in the
23 environmental assessment of Bruce A.

24 Not only are the Bruce A reactors
25 five years older, and, therefore, burdened by

1 aging components, but also they do not have the
2 modifications that were built into Bruce B
3 reactors because of operational experiences.
4 According to our information, that is still not
5 available to the CNSC staff or to the Commission,
6 and, again, we point out that this proponent is
7 really trying to push through the environmental
8 assessment to be able to refuel the reactors.

9 We are thoroughly confused with
10 staff's response to the cumulative effects
11 assessment, issue 28, page 27. Firstly, they
12 state that units 3 and 4 are projected to be
13 operated for eight and 13 years respectively, and
14 I quote "not more." Then on page 28, the response
15 continues, and I quote again:

16 "...it is assumed that the
17 return to service of Units 3
18 and 4 will begin during the
19 summer of 2003 and that the
20 two reactors would shutdown
21 permanently in 2015."

22 In our calculation, unit 3 would
23 shutdown in 2011 and unit four in 2026.

24 Another point of contention is the
25 statement of page 2, item 3, and CMD 02-H26, that

1 no changes to existing approved waste management
2 practises or systems have been proposed.

3 With the proposed loading of spent
4 fuel from the irradiated fuel bays into dry
5 storage containers, elaborate modifications inside
6 the Bruce A fuel buildings are proposed, to our
7 knowledge. This negates the no change contention
8 of CNSC staff because this proposed project, a
9 bump-up to a higher level environmental
10 assessment, must be undertaken.

11 In conclusion, we completely
12 reject this inadequate screening level
13 environmental assessment on the restart of the
14 Bruce A reactors 3 and 4. In the strongest terms
15 possible, Great Lakes United calls for the
16 Commission to refer this project proposal to the
17 Minister of the Environment, recommending an
18 independent panel review with full public hearings
19 in accordance with sub-section 25(a) and (b) of
20 the Canadian Environmental Assessment Act.

21 This was signed by Margaret
22 Wooster, Executive Director of Great Lakes United.

23 THE CHAIRPERSON: Thank you very
24 much, Mr. Kleinau.

25 Are there questions from the

1 Commission Members with regards to this
2 Commission?

3 Dr. McDill.

4 MEMBER McDILL: I think this
5 question is similar to one I posed before with
6 respect to a previous intervenor. I will quote:

7 "In the CNSC screening report
8 released October 2002, none
9 of our concerns were answered
10 and no changes to the report
11 were deemed necessary by the
12 editors."

13 Where could the intervenor find
14 responses to Great Lakes United's concerns or is
15 it similar, you only looked for technical things
16 to respond to?

17 MR. RIVERIN: All comments and
18 responses to the comments are found in annex 3 of
19 the screening report. All comments received were
20 reviewed and considered by staff before finalizing
21 the screening report. All the comments and the
22 responses to these comments are included in the
23 screening report, annexes 3 and 4 and are
24 available to the Commission in their consideration
25 of the screening report.

1 Staff concluded, after review of
2 these comments, that all issues relevant to the
3 scope of the assessment issued by the Commission
4 and raised as a result of the public consultation
5 had been adequately addressed in the assessment.
6 Many issues raised during the review were outside
7 the scope of the assessment and were addressed in
8 annex 3 to the screening report.

9 Consequently, the conclusions of
10 the EA would not change.

11 MEMBER McDILL: Thank you.

12 THE CHAIRPERSON: Dr. Giroux.

13 MEMBER GIROUX: One comment and
14 one question.

15 The question of the dates of the
16 start up and the shutting down has been addressed
17 this morning and early today in answering one of
18 my questions. That was one of the interventions I
19 was referring to.

20 Just for the sake of accuracy, you
21 say, according to your calculation, unit 4 should
22 close in 2026. I think you mean 2016, which is
23 2003 plus 13. That is just a point. I want to
24 make sure we understand each other.

25 I think my question is to staff.

1 The next paragraph concerning the changes to the
2 fuel bays, the intervenor claimed that this is not
3 taken into account in the assessment. Could you
4 comment on that?

5 MR. RIVERIN: The modifications to
6 the fuel bays at Bruce B and A were taken into
7 account in the assessment done on the western
8 waste management facilities, which underwent a
9 comprehensive study in 1999 and, therefore, it was
10 felt that these did not need to be reassessed.

11 THE CHAIRPERSON: Mr. Graham.

12 MEMBER GRAHAM: That was my
13 question with regard to the EA and the fuel bays.

14 THE CHAIRPERSON: Dr. Barnes.

15 MEMBER BARNES: In the fourth
16 paragraph, this is a question to Bruce power,
17 maybe staff, if they feel like it, is there any
18 additional so-called "available best technology"
19 that could in fact reduce significantly the
20 thermal plume?

21 MR. MOFFETT: We are not aware at
22 this point of any technology that could. However,
23 as part of the follow-up program, Bruce Power is
24 proposing to do a literature survey and an
25 examination of other power plants in the Great

1 Lakes and elsewhere to determine if there are any
2 modifications or mitigations that might be made to
3 improve that.

4 MEMBER BARNES: Is staff aware of
5 any?

6 MR. BLYTH: Mr. Douglas just
7 reminded me we are not designers. We are not
8 aware of such technology. It is really not our
9 area of expertise.

10 THE CHAIRPERSON: Yes, Mr.
11 Moffett.

12 MR. MOFFETT: If I might, Madam
13 Chair, I do need to say there was an indication
14 made in the presentation that Bruce Power will not
15 meet the requirements of the Fisheries Act with
16 respect to discharges. That is not correct.

17 Bruce A will meet all the
18 requirements of the Ontario Ministry of the
19 Environment with respect to thermal discharges and
20 chemical discharges. Further, Bruce Power will
21 meet all the requirements of the federal Fisheries
22 Act with respect to deleterious substances in
23 receiving waters, including the discharge channel.

24 THE CHAIRPERSON: Are there any
25 further questions? Yes, Mr. Kleinau.

1 MR. KLEINAU: I just wanted to get
2 back to this because these are the Ministry of the
3 Environment's comments and recommendations. We
4 just took these recommendations and incorporated
5 them into this report, into this submission.

6 THE CHAIRPERSON: Do the staff
7 have a comment with regard to the disposition of
8 the comments of the Ministry of the Environment?

9 MR. RIVERIN: The comments made by
10 the Department of the Environment were addressed
11 in annex 2 as a result of the review of the draft
12 EASR, and Environment Canada was satisfied that
13 the answer provided to them and the information
14 provided to them in revising the EASR and
15 subsequently were satisfactory.

16 THE CHAIRPERSON: Thank you very
17 much, Mr. Kleinau.

18 We have a number of written
19 submissions to look at. We are just going to take
20 a ten-minute break. It has been a long day. We
21 will take a ten-minute break. If we could be back
22 promptly in ten minutes to look at written
23 submissions.

24 --- Upon recessing at 6:20 p.m.

25 --- Upon resuming at 6:30 p.m.

1

2 **02-H26.10**3 **Written submission from Business Improvement Area**

4 THE CHAIRPERSON: We are now going
5 to move to the next submission, which is a written
6 submission from Kincardine Business Improvement
7 Area. This is noted in CMD document 02-H26.10.

8 Are there any questions or
9 comments with regards to this written submission?
10 No? Thank you.

11

12 **02-H26.11**

13 **Written submission from Paul Steckle, M.P., Huron-**
14 **Bruce**

15 THE CHAIRPERSON: The next
16 submission is a written submission from Paul
17 Steckle, M.P. for Huron-Bruce, as noted in CMD 02-
18 H26.11.

19 Are there any questions or
20 comments from the Commission Members with regards
21 to this written submission?

22

23 **02-H26.12**

24 **Written submission from Ovid L. Jackson, M.P.,**
25 **Bruce-Grey-Owen Sound**

1 THE CHAIRPERSON: The next
2 submission is a written submission from Mr.
3 Jackson, M.P. for Bruce-Grey-Owen Sound, as
4 outlined in CMD document 02-H26.12.

5 Are there any questions or
6 comments from the Commission Members with regards
7 to this written submission?

8

9 **02-H26.13**

10 **Written submission from Saguingue Metis Council**

11 THE CHAIRPERSON: We now move to
12 the written submission from the Saguingue Metis
13 Council as outlined in CMD document 02-H26.13.

14 Are there any questions or
15 comments from Commission Members with regards to
16 this written submission?

17

18 **02-H26.14**

19 **Written submission from Elizabeth Balser**

20 THE CHAIRPERSON: The next
21 submission is a written submission from Elizabeth
22 Balser as outlined in CMD 02-H26.14.

23 Are there any questions or
24 comments from Commission Members with regards to
25 this submission?

1

2 **02-H26.15**

3 **Written submission from the Municipality of South**
4 **Bruce**

5 THE CHAIRPERSON: The next
6 submission is a written submission from the
7 Municipality of South Bruce as outlined in CMD
8 document 02-H26.15.

9 Are there any questions or
10 comments from Commission Members with regards to
11 this submission?

12

13 **02-H26.17**

14 **Written submission from The Corporation of the**
15 **Township of Huron-Kinloss**

16 THE CHAIRPERSON: The next
17 submission is a written submission from the
18 Corporation of the Township of Huron-Kinloss, 02-
19 H26.17.

20 Are there any questions or
21 comments from the Commission Members with regards
22 to this submission?

23

24 **02-H26.18**

25 **Written submission from Town of Saugeen Shores**

1 THE CHAIRPERSON: The next
2 submission is a written submission from the
3 Corporation of the Town of Saugeen Shores, 02-
4 H26.18.

5 Are there any questions or
6 comments from the Commission Members with regards
7 to this written submission?

8

9 **02-H26.19 / 02-H26.19A**

10 **Written Submissions from 22 Intervenors Requesting**
11 **that the Environmental Assessment be Referred to**
12 **the Minister of the Environment for a Referral to**
13 **a Review Panel**

14 THE CHAIRPERSON: The next
15 submission is a group of submissions. This
16 includes 22 letters received from intervenors as
17 outlined in CMD document 02-H26.19A. These
18 letters have been grouped together because they
19 are substantively similar in terms of their
20 content.

21 Are there any questions or
22 comments from the Commission Members with regards
23 to these written submissions?

24 02-H26.23

25 Written submission from Canadian Nuclear Workers

1 Council

2 THE CHAIRPERSON: The next
3 submission is a written submission from the
4 Canadian Nuclear Workers Council as outlined in
5 CMD 02-H26.23.

6 Are there any questions or
7 comments from Commission Members with regards to
8 this written submission?

9

10 **02-H26.24**

11 **Written submission from Helen Johns, M.P.P. Huron-**
12 **Bruce**

13 THE CHAIRPERSON: The last written
14 submission on this subject is from Mrs. Helen
15 Johns, M.P.P. Huron-Bruce as outlined in CMD
16 document 02-H26.24.

17 Are there any questions or
18 comments from the Commission Members with regards
19 to this written submission?

20 Therefore, this ends the
21 submissions for this matter.

22 With respect to this matter, I
23 propose that the Commission confer with regards to
24 the information we have considered today and then
25 determine if future information is required or if

1 the Commission is ready to proceed with the
2 decision. We will advise accordingly.

3 Yes, Mr. Blyth.

4 MR. BLYTH: Excuse me, Madam
5 President, but Mrs. Cumbow, the intervenor or
6 representative of Citizens for Alternatives to
7 Chemical Contamination raised a point which I
8 believe Mr. Graham picked up on on the 30
9 megagrams of heavy water that was released into
10 the lake from Bruce A in 1991.

11 THE CHAIRPERSON: Yes.

12 MR. BLYTH: We have found the
13 staff report that contains that information and I
14 believe we should acknowledge that yes, in fact,
15 in 1991, as a result of problems with steam
16 generator tubes principally in unit 2 over the
17 course of the year, almost 37,000 kilograms of
18 heavy water were released into the lake.

19 There were high releases in 1989
20 and 1990 as well, but that was the highest. At no
21 time, however, were dose limits to the public
22 predicted to be exceeded but, yes, that event did
23 happen and we acknowledge that and it is described
24 in CNSC documents, ACB documents more precisely.

25 THE CHAIRPERSON: Thank you very

1 much, Mr. Blyth, for completing the record.

2 Therefore, I will restate the
3 ending of this hearing today.

4 With respect to the matter, I propose that the
5 Commission confer with regards to the information
6 we have considered today, and then determine if
7 further information is needed or if the Commission
8 is ready to proceed with the decision, and we will
9 advise accordingly.