

1           **HEARING DAY ONE**

2           **Ontario Power Generation Inc.: Application for**  
3           **the renewal of the operating licence for the**  
4           **Darlington Nuclear Generating Station**

5                           THE CHAIRPERSON: We will now move  
6           to Hearing Day 1 of a two day process on the  
7           matter of the application by Ontario Power  
8           Generation Inc. for the renewal of the operating  
9           licence for the Darlington Nuclear Generating  
10          Station.

11                           October 15 was the deadline set  
12          for filing by the applicant and by CNSC staff.  
13          November 7 was the deadline for filing of  
14          supplementary information by the applicant and by  
15          Commission staff.

16                           Please note that Commission  
17          Members MacLachlan, Dosman and Graham will not be  
18          able to be present today and therefore will not  
19          participate either in Hearing Day 2 scheduled for  
20          January 16, 2003, nor will they participate in the  
21          decision on the matter of the application before  
22          us.

23

24           **02-H23.1/02-H23.1A**

25           **Oral presentation by Ontario Power Generation Inc.**

1                   I would like to begin the hearing  
2                   this afternoon by calling upon Ontario Power  
3                   Generation Inc. for the oral presentation as  
4                   outlined in documents CMD 02-H23.1 and  
5                   CMD 02-H23.1A. I will turn it over to Mr. Graham  
6                   Brown.

7                   Mr. Brown, welcome.

8                   MR. BROWN: Thank you and good  
9                   afternoon.

10                  Madam Chair, Commissioners, I am  
11                  Graham Brown. I am the Chief Operating Officer  
12                  for Ontario Power Generation and a member of its  
13                  board of directors. I joined OPG in October 2000  
14                  after working for six years in the electricity  
15                  generation industry in the U.K.

16                  Through my responsibilities as a  
17                  director and officer of the company I have been  
18                  involved OPG's nuclear business since joining the  
19                  company, but since October this year I have also  
20                  assumed the responsibilities of its Chief Nuclear  
21                  Officer.

22                  With me today and sitting to my  
23                  right is Mr. Gregory Smith who is the Senior Vice  
24                  President of Darlington, and to my left Mr. Pierre  
25                  Charlebois, who is Nuclear Chief Operating Officer

1 and Chief Nuclear Engineer.

2 Our presentation today is in  
3 support of our request for the renewal of the  
4 Darlington operating licence. We have previously  
5 filed a written submission of our case with the  
6 Commission.

7 We have reviewed the CNSC staff  
8 CMD and their recommendation that Darlington be  
9 granted a five year licence term. I confirm that  
10 OPG supports that staff recommendation.

11 In today's presentation we will  
12 briefly highlight to the Commission the  
13 performance that we have achieved in each of the  
14 nine safety areas assessed by CNSC staff and shown  
15 on this slide.

16 We are working very hard to  
17 improve our safety performance in all of these  
18 areas, but in particular this afternoon we would  
19 like to describe the actions we are taking to  
20 improve our performance in "performance  
21 assurance", the one area in which CNSC staff  
22 assessed our performance as below requirements.

23 Turning first to the licence term,  
24 we submit that we meet the criteria established by  
25 the CNSC staff as listed on this slide.

1                   Operational impacts of the station  
2                   are I believe well-understood. We have carried  
3                   out all required public, worker and environmental  
4                   safety evaluations. We actively monitored the  
5                   consequences of all of our site activities and we  
6                   are constantly looking for new ways to improve.  
7                   We also have well-developed internal controls to  
8                   ensure that we operate within regulatory limits  
9                   established to protect the environment and the  
10                  public.

11                  We have management systems in  
12                  place to provide assurance that the safety-related  
13                  activities are effective and maintained. It is  
14                  noteworthy that Darlington was the first nuclear  
15                  station in North America to have its environmental  
16                  management system ISO 14001 certified.

17                  We have an effective compliance  
18                  program in place. Our Station Condition Record  
19                  process has been an effective tool for ensuring  
20                  that emerging issues are clearly identified to  
21                  management for early resolution. We frequently  
22                  perform self-evaluations and internal audits to  
23                  assess our performance. We also invite external  
24                  industry representatives to assess our performance  
25                  and provide recommendations for further

1 improvement.

2 We have no major changes planned  
3 for the station or its operations over the next  
4 five years that would affect the licence.

5 Finally, the safety and  
6 operational performance at Darlington has improved  
7 steadily over recent years and we are confident  
8 that this positive momentum will be maintained  
9 into the future.

10 The Nuclear Performance Index is  
11 used by members of the World Association of  
12 Nuclear Operators or WANO. It is a composite of  
13 10 measures. The top eight measures shown in this  
14 bar graph are safety performance measures and the  
15 top two are primarily intended as performance  
16 measures. However, I would contend that taken  
17 together with our other safety benchmarks and  
18 trouble free operation indicates good equipment  
19 condition and reliable procedural adherence, which  
20 also contributes to plant and employee safety.

21 The values shown on the slide list  
22 the achievement of Darlington in the third quarter  
23 for the eight safety measures and the two  
24 production measures.

25 We have already achieved 91.8 per

1 cent, that is 71.6 out of 78 marks, of the maximum  
2 score allocated to the eight safety measures.  
3 Improvements in fuel reliability and fewer  
4 unplanned unit shutdowns is expected to raise that  
5 safety performance to 100 per cent. Further  
6 improvements in the production performance are  
7 also to be expected.

8 This slide shows the nuclear  
9 performance index for the individual Darlington  
10 units and the composite value for the plant during  
11 the last four quarters. The steady improvements  
12 in safety, operations, maintenance and outage  
13 planning are all contributing to improved ratings.  
14 We are targeting to bring our overall performance  
15 at Darlington from the current index rating of  
16 90.2 to over 96 over the next few years. As you  
17 can see, Unit 4 at Darlington has already achieved  
18 a rating of 97.7.

19 With that, I would like to ask  
20 Gregory Smith to provide the Commission with an  
21 overview of Darlington's performance in each of  
22 the nine safety areas I referred to earlier.

23 MR. SMITH: Thank you, Graham.

24 Madam Chair and Commissioners, for  
25 the record my name is Gregory Smith and I am the

1 Senior Vice President at Darlington. I have  
2 approximately 27 years of experience in the area  
3 of environmental science, chemistry, radiation  
4 protection and utility operations with 23 years  
5 associated with the nuclear industry.

6 OPG's primary focus is the safe  
7 operation of Darlington. The following slides  
8 will show our achievements and discuss areas for  
9 improvement. Please note that the rating for each  
10 program and their implementation appear in the  
11 upper right-hand corner.

12 In the area of industrial safety,  
13 I am pleased to advise the Commission that our  
14 excellent safety performance continues. At the  
15 time of this filing our lost time accident rate  
16 remains at zero. We have worked over 5.75 million  
17 person hours since our last lost time accident.  
18 This represents 560 days without a lost time  
19 accident. That puts us at the top of the industry  
20 as compared to our peers.

21 The industrial safety performance  
22 is attributable to everyone at the station doing  
23 their part to meet OPG's safety first value.

24 Our system health program  
25 establishes baseline requirements for activities

1       such as preventative maintenance, inspection and  
2       testing, operational surveillance and monitoring.  
3       This program ensures that the systems are being  
4       evaluated on an ongoing basis and that performance  
5       and reliability objectives are being met resulting  
6       in improved plant condition.

7                   There have been no serious process  
8       failures at Darlington since construction. We did  
9       however experience two plant transients in the  
10      year 2001. One event, caused by the failure of a  
11      pressure regulating valve, resulted in a Unit 3  
12      trip. We have fixed the equipment that  
13      contributed to this event and are implementing  
14      additional corrective actions to ensure an event  
15      of this type does not recur.

16                   The other event involved employees  
17      working on the wrong equipment. That caused the  
18      shutdown of Unit 3. OPG is responding to this  
19      event through several process improvements and a  
20      focus on our human performance improvement  
21      program.

22                   Human performance improvement is  
23      our top priority at OPG. We recognize the  
24      importance of the human performance improvement  
25      program to improve our operating performance. In

1 support of this goal we have established a human  
2 performance director and a human performance  
3 organization within OPG Nuclear.

4 A human performance internal  
5 standard has been established based on the  
6 Institute of Nuclear Power Operators Human  
7 Performance Leadership Framework. It describes  
8 the roles, responsibilities, organizational  
9 structure and program attributes necessary to  
10 support an improved human performance program on  
11 the part of our people.

12 Internal and external assessments  
13 and reviews have shown improved human performance  
14 in such areas as main control room operations,  
15 reportable events due to steam doors, use of  
16 personal protective equipment, the application of  
17 the worker protection code, and use of event free  
18 tools.

19 We measure our human performance  
20 through a process of monitoring all of the human  
21 performance errors that occur at the station.  
22 Those errors that exceed an internal threshold are  
23 considered an event and they reset our event free  
24 clock. This threshold is quite low, consisting of  
25 events such as any type of injury which requires

1 medical attention, incorrectly posting a hotspot  
2 of greater than 2.5 millirem per hour or the  
3 inadvertent start or trip of equipment.

4 There were 34 event free day  
5 resets at Darlington as of the middle of October  
6 2002. That compares to 72 events as of the same  
7 time last year. The two dominant causal factors  
8 that we have identified are inadequate  
9 self-checking and procedural compliance. We are  
10 focusing on these two areas in our human  
11 performance improvement program.

12 The second area of performance  
13 assurance is OPG's quality assurance program. We  
14 have made progress on these programs but as noted  
15 by the CNSC staff have implementation issues that  
16 we are addressing.

17 OPG's overall quality assurance  
18 program documentation has been assessed by the  
19 CNSC staff as meeting the licence requirements.

20 Our configuration management  
21 restoration program has resulted in completion of  
22 over 80 per cent of the configuration restoration  
23 tasks on the four safety systems. We are on track  
24 to complete the balance of this work.

25 Our pressure boundary program

1 documentation also meets the requirements of the  
2 licence. However, we are not satisfied with our  
3 implementation of this program.

4 Although the CNSC's review of  
5 OPG's pressure boundary program at Darlington was  
6 deferred, the findings from the Pickering B  
7 station are directly applicable to Darlington.  
8 The corrective actions established following that  
9 review have also been implemented at the  
10 Darlington station and the major problem  
11 identified is in the area of material management.

12 We have implemented mitigating  
13 actions including a material verification process  
14 to review all pressure boundary material that is  
15 being installed to provide assurance that it is  
16 acceptable and complies with the CSA standard.

17 CNSC staff are actively reviewing  
18 these mitigating actions. These mitigating  
19 actions will continue until we are satisfied that  
20 the pressure boundary program has been  
21 successfully implemented. We established a team  
22 within OPG to identify the underlying causes for  
23 the implementation issues that we have  
24 encountered. This team reports directly to OPG  
25 nuclear executives and we are monitoring our

1 performance against that plan.

2 We are targeting to be in a  
3 position to renew our request for certification in  
4 2003.

5 Next I will talk to training.

6 Training is a vital part of our  
7 overall operation and our continued improvement.  
8 The shift supervisor training program is conducted  
9 in accordance with the systematic approach to  
10 training principles. The candidates who are  
11 currently progressing through the training program  
12 have completed our internal examinations and are  
13 being certified by the CNSC.

14 We are improving the Unit 0  
15 operating training program. We will provide the  
16 training standard for the Unit 0 operators to the  
17 CNSC staff in 2003.

18 The new performance based training  
19 program developed for non-certified operators has  
20 now been completed. All outstanding deficiencies  
21 identified by CNSC staff have been addressed.

22 Maintenance staff initial and  
23 continuing training programs have been  
24 implemented. The CNSC staff identified some areas  
25 for improvement and an action plan to address

1           these deficiencies has been provided.

2                           The third area assessed is in the  
3           area of design adequacy and includes both safety  
4           analysis and station design.

5                           Over the last two years, OPG has  
6           requested seven generic action items be closed by  
7           CNSC staff. For the remaining generic action  
8           items, OPG has developed work plans and is  
9           proceeding on schedule.

10                          In response to the reactor physics  
11           code issue, we have initiated a program aimed at  
12           increasing the operating margins for all of OPG's  
13           stations for a postulated large break loss of  
14           coolant accident. This program includes  
15           conducting analysis to better quantify the  
16           existing margins and the assessment of design  
17           options.

18                          OPG is also addressing the CNSC  
19           action items. For example, in response to the  
20           single heat transport trip issue we have installed  
21           changes to the trip computers on two of the units  
22           and we will have the changes installed on the  
23           other two units early next year.

24                          Other improvements to Darlington  
25           include: the installation of the new emergency

1 core cooling system strainers to address the  
2 post-accident debris issue -- these are scheduled  
3 for completion in the station containment outage  
4 next year; the installation and commissioning of  
5 the new turbine generator sprinkler system -- the  
6 sprinkler system is scheduled to be in place and  
7 in service on all units by the end of this year;  
8 and finally, the installation of the fire  
9 detection system upgrades. These upgrades are  
10 scheduled for completion by year end.

11 We have also made progress in  
12 improving the environmental qualifications of the  
13 station. For example, we have completed our  
14 review of 80 per cent of the environmental  
15 qualification assessments for the station. We are  
16 confident that we will be able to meet the licence  
17 conditions.

18 The design of Darlington uses  
19 steam rooms as barriers to ensure that equipment  
20 will function following a steam line accident.  
21 OPG has had three issues related to these rooms  
22 that we are addressing.

23 This slide shows the number of  
24 instances in which safety significant steam doors  
25 have not been properly latched closed. The

1 improvement that we made to the door closure  
2 mechanisms, our ongoing monitoring process, as  
3 well as a heightened awareness of Darlington staff  
4 has resulted in a significant reduction in the  
5 number of events, going down to two as of the year  
6 end 2002. That represents approximately 1 million  
7 openings and closures per year.

8 We have also performed the  
9 inspection of all of the 282 steam protected rooms  
10 and corrected the 24 rooms that were found to have  
11 gaps larger than the established limits.

12 The last issue is the steam door  
13 hatches. Thirty of the steam doors have hatches  
14 for maintenance and testing of equipment. CNSC  
15 staff advised us that the hatches are not an  
16 adequate design solution to the issue of how to  
17 have cables enter the rooms. We are developing an  
18 alternative solution that we will propose to CNSC  
19 staff. We are expected to resolve this issue by  
20 March 2003. Meanwhile, working with CNSC staff,  
21 we have implemented additional approvals for the  
22 use of these hatches and are ensuring that the  
23 hatches are closed after each use.

24 The fourth area assessed is in the  
25 area of equipment fitness for service.

1                   An important measure of public  
2 safety is the state of special safety system  
3 readiness such as Shutdown System 1, Shutdown  
4 System 2, Containment and Emergency Coolant  
5 Injection. Each special safety system has an  
6 unavailability limit of approximately eight hours  
7 per year. In the past five years the special  
8 safety systems have generally met our target for  
9 unavailability.

10                   OPG has established a maintenance  
11 program to ensure that equipment will meet the  
12 performance requirements and that malfunctions and  
13 deficiencies will be corrected in a timely manner.

14                   Preventative maintenance  
15 performance on safety or safety related systems is  
16 a strong measure of the number of regulatory  
17 preventative maintenance predefines overdue per  
18 unit. At the end of September there were no  
19 regulatory preventative maintenance work orders  
20 overdue at our station.

21                   The two major categories of  
22 corrective maintenance that can be done while the  
23 units are operating are on-line corrective and  
24 on-line normal maintenance.

25                   Our efforts have reduced the

1 backlog of both on-line corrective and normal  
2 maintenance. The on-line corrective maintenance  
3 backlog has substantially improved by 80 per cent,  
4 going from 45 work orders per unit in 2000 to  
5 8.5 work orders per unit in September of this  
6 year.

7 The on-line normal maintenance  
8 backlog is a much larger measure of overall work.  
9 That backlog in 2001 was 1173 work orders per  
10 unit. Our backlog at the end of September was 923  
11 work orders, and yesterday it represented 832 work  
12 orders per unit. The target for 2003 is to have  
13 the backlog reduced to 400 work orders per unit,  
14 which will match industry best practices.

15 These improvements have been  
16 achieved by:

17 Increasing the amount of  
18 maintenance work performed on all systems;

19 Improving the planning and  
20 preparation of scoped work; and by

21 Maximizing the use of Fix It Now  
22 Teams, which gets a maximum amount of work done  
23 with the least amount of effort.

24 To ensure the integrity of the  
25 pressure boundary and fitness for service of the

1 nuclear plant systems and components, OPG has  
2 implemented a periodic inspection program.

3 The periodic inspection program  
4 covers several types of equipment, including  
5 pressure tubes, feeder piping and steam generator  
6 tubes.

7 OPG inspects selected pressure  
8 tubes as part of the regular outage activities for  
9 signs of fret marks and to check for deuterium  
10 uptake by the material. The selection is based on  
11 our pressure tube inspection program.

12 We inspected pressure tubes in  
13 Unit 2 in 2001 and in Units 1 and 3 in 2002.  
14 Unit 4 will be inspected as part of the 2003  
15 outage. The inspection shows the pressure tubes  
16 are fit for service.

17 As a result of industry  
18 developments, OPG increased the scope of its  
19 inspection program to assess the extent of feeder  
20 wall thinning on all of our units. The feeders on  
21 all four units at Darlington have been inspected.  
22 All of the feeder wall thickness values measured  
23 are above the minimum required thicknesses. The  
24 results are as expected and meet the established  
25 fitness for duty guidelines.

1                   Also, no cracks have been  
2 identified in any of the feeder piping at  
3 Darlington.

4                   OPG is participating in the  
5 industry program that is researching potential  
6 chemical and physical solutions to the feeder  
7 thinning issues and developing techniques for the  
8 safe replacement of feeders or portions of  
9 feeders.

10                  All of the steam generators at  
11 Darlington have had major inspections. The  
12 inspections confirm that the steam generators in  
13 all units are fit for service through their next  
14 planned outages.

15                  Starting in 2003 we will begin  
16 installing anti-vibration bars in the steam  
17 generators. These will reduce the fretting of the  
18 steam generator tubes.

19                  The fifth area assessed is  
20 emergency preparedness. The emergency  
21 preparedness program at Darlington was recently  
22 evaluated by CNSC staff and assessed as exceeding  
23 our regulatory requirements.

24                  OPG is committed to ensuring that  
25 it remains prepared to address the unlikely event

1 of an emergency. As such, we maintain open  
2 communications with Emergency Measures Ontario and  
3 the Regional Municipality of Durham to ensure that  
4 our efforts would appropriately coordinate with  
5 their activities.

6 The sixth area assessed is in the  
7 area of environmental performance.

8 As Graham indicated, we were one  
9 of the first -- we were the first nuclear power  
10 station in North America to be ISO 14001  
11 certified. We assess the environmental risks  
12 associated with operation of Darlington on an  
13 ongoing basis and ensure that the impact on the  
14 environment is as low as reasonably achievable.

15 OPG manages its radiological  
16 emissions based on derived release limits. OPG  
17 has never exceeded the derived release limit for  
18 Darlington and emissions in all cases are a small  
19 fraction of this limit. Details of our emissions  
20 are provided in our written submissions.

21 Conventional emissions from  
22 Darlington are subject to the limits prescribed by  
23 the Ontario Ministry of the Environment. The  
24 conventional emissions from Darlington have been  
25 below those limits. We have also not had a sample

1 fail the toxicity testing required by the  
2 provincial MISA regulations since 1999.

3 There have been no major spills at  
4 our station.

5 Radiation protection is the  
6 seventh area assessed. Through our programs we  
7 ensure that the radiological risk to our workers  
8 is as low as reasonably achievable.

9 For example, during the Unit 3  
10 outage in 2002 we took efforts to reduce personnel  
11 radiation exposure, which resulted in a collective  
12 external dose saving of more than 250  
13 millisieverts and a collective internal dose  
14 saving of 200 millisieverts.

15 The station's exposure control  
16 program continues to be in full compliance with  
17 our regulatory requirements.

18 We are also actively seeking to  
19 eliminate the instances where personnel fail to  
20 wear their TLD badge. To that end, we have  
21 installed turnstiles at our change rooms to at the  
22 entrance to our station to ensure that employees  
23 have their TLD badges when they enter the station.  
24 In 2001 there were 16 TLD badge events. To the  
25 end of September there have been seven. Since the

1 installation of these turnstiles there have been  
2 no workers working in Zone 3 who have not worn  
3 their TLD badges.

4 Security and safeguards are the  
5 last two areas that are assessed.

6 Since September 11, 2001,  
7 Darlington Security has been operating at an  
8 enhanced alert level. This alert level is now the  
9 normal state of security at Darlington.

10 A CNSC security audit was  
11 conducted at Darlington in September 2002. The  
12 CNSC staff found that overall we meet the  
13 requirements in the regulations and in the order  
14 issued by this Commission following the events of  
15 September 11, 2001.

16 OPG is also meeting the safeguards  
17 license conditions.

18 Before concluding, I will touch  
19 briefly on the extensive relationship we have  
20 established with the local community. From the  
21 face-to-face sessions I have had with each  
22 municipal leader, I believe that Darlington and  
23 our employees are seen as a major asset to the  
24 community.

25 During the course of the year

1 presentations on various topics, including an  
2 annual update, are made to council. There is  
3 frequent contact with elected and appointed  
4 officials who receive our quarterly report cards.  
5 Annual ward tours have been instituted and the  
6 feedback from that has been very positive.

7 We send each household and  
8 business in Clarington and Oshawa a quarterly  
9 newsletter which provides them with a summary of  
10 the station's performance. Again, the feedback  
11 from this communication has been very positive.

12 Our site is well used for  
13 environmental and educational programs. We have  
14 been nominated for the Lands of Learning Award  
15 this year by the World Wildlife Habitat Council.  
16 Our Site Planning Committee, with community  
17 members, is a good sounding board for raising  
18 issues both on and off site.

19 Interest is higher in used fuel  
20 management due to the environmental assessment of  
21 the used fuel dry storage facility and the  
22 establishment of the waste management  
23 organization. We are ensuring that we keep the  
24 community informed and involved in our plans.

25 Promotion for and interest in the

1 ITER project is exceedingly high in the Durham  
2 region.

3 Following September 11, 2001,  
4 security became an issue of interest to our  
5 community. Residents have appreciated the fact  
6 that we have kept them informed and that measures  
7 to strengthen our security have been implemented.

8 Madam Chair and Commissioners, in  
9 conclusion OPG submits that based on our programs  
10 and performance it is meeting section 24(4) of the  
11 Act.

12 We also submit, as mentioned at  
13 the beginning of our presentation, that we meet  
14 the criteria for the license recommendations by  
15 CNSC staff.

16 Thank you.

17 We would be pleased to answer any  
18 questions you may have.

19 THE CHAIRPERSON: Thank you very  
20 much.

21 Before I turn to staff, I just  
22 wanted to mention to Mr. Brown and the OPG staff  
23 that I am not comfortable with your acceptance of  
24 a recommendation by staff as the conclusion, so  
25 you could tell the Commission now what you are

1           requesting in terms of a licence length or you can  
2           wait until after the staff are finished and come  
3           back. But I really do want that on record in  
4           terms of the request by OPG for a licence length.

5                         MR. BROWN: For the record,  
6           Chairman, OPG is requesting a five-year licence.

7                         THE CHAIRPERSON: Thank you very  
8           much.

9                         We will now move into the CNSC  
10          staff before we open the floor for questions.

11                        Mr. Blyth.

12

13           **02-H23**

14           **Oral presentation by CNSC staff**

15                        MR. BLYTH: Thank you.

16                        Good afternoon, Madam Chair,  
17          Members of the Commission.

18                        My name is Jim Blyth, I am the  
19          Director General of Power Reactor Regulation.  
20          With me today are Ms Beverly Ecroyd, Director of  
21          our Darlington Compliance and Licensing Division,  
22          and Mr. Gerry Moriarty, who is a Project Officer  
23          at our site office at Darlington.

24                        We are here to present CMD 02-H23  
25          to the Commission for a decision regarding Ontario

1 Power Generation's application for the renewal of  
2 the Darlington Nuclear Generating Station  
3 operating licence.

4 The current licence for Darlington  
5 will expire on February 28, 2003.

6 I will now turn the presentation  
7 over to Ms Ecroyd.

8 MR. ECROYD: Thank you, Mr. Blyth.

9 With the Commission's indulgence,  
10 before I begin my presentation I would like to  
11 make three corrections to CMD 02-H23 and just have  
12 them read into the record.

13 If you could turn to page 29,  
14 please, section 3.4.3.7. The last sentence of the  
15 first paragraph reads:

16 "As a preventive measure OPG  
17 installed anti-vibration  
18 bars". (As read)

19 The correct wording should read:

20 "As a preventive measure, OPG  
21 is installing anti-vibration  
22 bars". (As read)

23 The second correct is on page 30.

24 In the middle of the first paragraph there is a  
25 sentence that reads:

1 "CNSC staff reviewed the  
2 implementation of this plan  
3 at Darlington NGS".

4 (As read)

5 It should read:

6 "CNSC staff is reviewing the  
7 implementation of this plan  
8 at Darlington NGS."

9 (As read)

10 Full stop.

11 The next sentence should start:

12 "OPG staff has also agreed to  
13 participate in..." (As read)

14 So the rest of that previous  
15 sentence should be struck.

16 The final correction is in the  
17 attachment, the draft licence of the attachment to  
18 this CMD. It is page 9 of 23 of the draft  
19 licence. Section 11.2 on decommissioning. It  
20 says:

21 "The licensee shall establish  
22 and maintain a financial  
23 guarantee for decommissioning  
24 acceptable to the Commission  
25 or person authorized by the

1                   Commission. This financial  
2                   guarantee shall be in place  
3                   by..." (As read)

4                   It reads currently "May 1, 2003".  
5                   The updated date for that now is "July 31, 2003".

6                   Thank you for your attention and  
7                   our apologies for any confusion these may have  
8                   caused.

9                   I will now begin my presentation.

10                  Madam President, Members of the  
11                  Commission, this presentation summarizes CNSC  
12                  staff's review of Ontario Power Generation's  
13                  application for licence renewal and gives an  
14                  evaluation of the licensee's performance during  
15                  the current licensing period. The CMD contains  
16                  further details in support of this summary.

17                  In attendance today are  
18                  representatives of CNSC divisions that contributed  
19                  to this CMD and who have responsibility for  
20                  various aspects of regulation at this station. I  
21                  am ably assisted with my slides for this  
22                  presentation by Madame Lorraine Legendre.

23                  On August 12, 2002 OPG applied to  
24                  the Commission for renewal of the Darlington Power  
25                  Reactor Operating Licence. This date met the

1 timeline requirements specified by CNSC staff.

2 Staff has reviewed the application  
3 and concludes that it contains the information  
4 required by the General Nuclear Safety and Control  
5 Regulations and the Class 1 Facility Regulations.

6 OPG did not request a specific  
7 time period for this licence, but stated it  
8 believed it met CNSC staff's criteria set out in  
9 CMD 02-M12 called the "New Staff Approach to  
10 Recommending Licensing Periods".

11 CNSC staff believes OPG continues  
12 to operate the Darlington nuclear generating  
13 station safely. During the current licensing  
14 period there were no serious process system  
15 failures, the availability of special safety  
16 systems was acceptable and radiation doses to  
17 workers and the public were well below regulatory  
18 limits.

19 As well, CNSC staff evaluations  
20 showed improved performance in the safety area  
21 called operating performance. OPG's response to  
22 issues discussed in the Mid-Term Report, 02-M25,  
23 appear to have been effective.

24 CNSC staff's overall rating of the  
25 licensee's performance is "B" - Meets

1 Requirements. This was determined by evaluating  
2 the licensee's programs and performance in each of  
3 the nine safety areas.

4 In general, OPG's programs met  
5 regulatory requirements, but in the area of  
6 performance assurance the licensee has had  
7 difficulty implementing some aspects of them  
8 adequately.

9 OPG is aware of its weaknesses,  
10 has accepted CNSC staff's feedback and is taking  
11 steps to improve. Part of our process is a  
12 requirement on the licensee to advise us of their  
13 plans and to give us regular updates of their  
14 progress. In addition, CNSC staff has increased  
15 monitoring efforts in this area, and will take  
16 further regulatory action, if needed.

17 To conclude, OPG's application for  
18 licence renewal meets the requirements of the  
19 Nuclear Safety and Control Act and its  
20 Regulations.

21 In light of OPG's performance  
22 during the current licensing period, the results  
23 of inspections, audits, evaluations and reviews  
24 carried out by CNSC staff, plus the programs and  
25 resources the licensee has in place, CNSC staff

1 concludes OPG is competent to operate the station  
2 and will continue to do so safely for the upcoming  
3 licensing period.

4 Staff's recommendation is that the  
5 Commission approve issuance of Power Reactor  
6 Operating Licence No. 13.00/2008 to OPG for  
7 Darlington Nuclear Generating Station for a period  
8 of five years, until February 29, 2008.

9 With regard to the proposed  
10 licence length, in CMD 02-M12 CNSC staff outlined  
11 the information it would take into account when  
12 recommending licensing periods. In particular, if  
13 a licensee had shown a consistent and good history  
14 of operating experience and compliance in carrying  
15 out the licensed activity, longer license periods  
16 could be recommended. Staff would also take into  
17 account the future plans of the licensee.

18 This slide, and the two that  
19 follow, list the criteria stated in CMD 02-M12,  
20 along with CNSC staff's views of how this licensee  
21 meets these criteria.

22 OPG's performance assurance  
23 programs met the regulatory requirements, as we  
24 discussed before, but it had difficulty  
25 implementing them adequately. OPG has recognized

1 its weakness and is taking steps to improve.

2 Planned compliance activities  
3 cover aspects of all safety areas and include  
4 inspections, evaluations, reviews and assessments.  
5 They are carried out by competent local CNSC  
6 inspectors and are supported by staff from many  
7 divisions of the CNSC.

8 Overall, this licensee meets CNSC  
9 staff's performance and program requirements.

10 This licensee is in good standing  
11 with regard to the cost recovery requirements.

12 CNSC staff plans to carry out a  
13 comprehensive compliance review of this facility  
14 during the upcoming licensing period. OPG's own  
15 planning cycle is not expected to pose any  
16 obstacle to carrying out this activity.

17 This concludes staff's  
18 presentation and we are available to answer  
19 questions that you may have.

20 THE CHAIRPERSON: Mr. Blyth, does  
21 that complete the presentation?

22 MR. BLYTH: Yes, Madam President,  
23 that completes staff's presentation with respect  
24 to the relicensing of Darlington.

25 THE CHAIRPERSON: Thank you.

1                   The floor is now open for  
2                   questions.

3                   Dr. Barnes.

4                   MEMBER BARNES: I thought both of  
5                   these reports were very concise and well put  
6                   together. I have about half a dozen I think  
7                   fairly brief questions.

8                   First to OPG.

9                   On page 7 you note that  
10                  Darlington's WANO index rating was 79.9 in 1999  
11                  and you indicate where you would like to get to in  
12                  2004. I wondered, that figure in 1999, how did  
13                  that compare to other OPG stations, just for sort  
14                  of a comparison? That is on page 7, the third  
15                  paragraph, or the second full paragraph.

16                  MR. BROWN: I'm sorry. This is  
17                  where we said what I said, Unit 4 at Darlington is  
18                  already achieving 97.7.

19                  MEMBER BARNES: Right. I wondered  
20                  how that --

21                  MR. BROWN: That is our best unit.  
22                  In international terms, index terms, it is a  
23                  second quartile performance.

24                  MEMBER BARNES: Okay. If I jump  
25                  ahead to page 24 where you deal with the training

1 issue on "5.3.1 Training Program Achievements" and  
2 you list some tables there that run onto page 25.  
3 I notice that in the first one on "Special  
4 Generals" you had a number of failures, 25-30 per  
5 cent failure, whereas in the other categories it  
6 was all 100 per cent pass.

7 Could you clarify that pattern for  
8 me? This was on page 24, running on to page 25.

9 MR. CHARLEBOIS: Is this 24 of the  
10 CMD?

11 MEMBER BARNES: Yes.

12 MR. CHARLEBOIS: Okay.

13 MEMBER BARNES: Yes, page 23.1.

14 --- Pause

15 MEMBER BARNES: Bottom of page 24,  
16 running on to the top of page 25.

17 The shift generals you have five  
18 failures out of 18, but the others, shift  
19 supervisor, generals, radiation protection, they  
20 all passed. I wondered if you had any comment on  
21 the pattern that is expressed there?

22 MR. SMITH: The patent?

23 MEMBER BARNES: The pattern. Why  
24 one would have a fairly high failure rate,  
25 25-30 per cent, and all the others had a complete

1 pass.

2 MR. SMITH: Sir, why don't I allow  
3 my colleague Pierre to address that question.

4 MR. CHARLEBOIS: For the record,  
5 my name is Pierre Charlebois and I am the Nuclear  
6 Chief Operating Officer and Chief Nuclear  
7 Engineer.

8 To your question, Dr. Barnes, we  
9 had one specific set of general exams where we  
10 received particularly poor results, which in fact  
11 was the subject of a fairly significant internal  
12 review and examination of the reasons why those  
13 particular results were poor.

14 I remember one of the fundamental  
15 issues was that the objectives for that particular  
16 set of programs -- that particular program that  
17 was delivered in fact had been modified somewhat.  
18 As a result, we missed some key areas of the  
19 program which were incomplete. Those issues have  
20 been corrected.

21 The people who were involved in  
22 the failures in fact received remedial training  
23 and were successful subsequent to the exam to pass  
24 the requirements.

25 MEMBER BARNES: Okay. The next is

1           on page 28 at the bottom, the list of generic  
2           action items. Perhaps the first point I would  
3           like to make is maybe a trivial editorial issue,  
4           but some have been read into the record.

5                        You list seven GAIs there and then  
6           you go on in more detail, "The following is a  
7           brief description", on the top of page 29, and  
8           status up of all the seven GAIs. I assume they  
9           are the same. Correct?

10                       But if I go back to that list on  
11           page 28, the first one, which is 90G0.3, is not  
12           included in the section and one is included but  
13           not on this list, which is 95G0.4. Is that just  
14           an editorial issue?

15           --- Pause

16                       MEMBER BARNES: For example,  
17           95G0.4 is in the middle of page 30, but it is not  
18           mentioned on that list. Is that just a --

19                       MR. BROWN: I would like my  
20           colleague John to deal with this, behind me.

21                       MR. TRIBOU: For the record, my  
22           name is John (off microphone...) Manager at  
23           Darlington.

24                       I'm afraid I can't give you a  
25           concise answer in this regard. I suspect it is an

1 editorial issue.

2 I will undertake to have this  
3 straightened out with a clear answer to your  
4 question for the January meeting, if that is  
5 acceptable.

6 MEMBER BARNES: Yes. It is  
7 important because it is the ones that the staff  
8 respond to. It may just be that the list needs  
9 correcting, but I think it is important.

10 MEMBER GIROUX: I'm sorry, but I  
11 think none of them on pages 29 and 30 are on  
12 page 28, just from a quick --

13 These are the ones that OPG is  
14 currently addressing, so they are not covered on  
15 page 28. You picked one out, but it is more  
16 systematic.

17 THE CHAIRPERSON: I think just for  
18 clarification of the record, I believe what  
19 Dr. Giroux is mentioning is that the description  
20 on the top of page 29 refers to the following  
21 items rather than to the preceding items.

22 Perhaps you could confirm that.

23 MEMBER BARNES: Okay. That is  
24 probably my error.

25 I will move quickly to my next

1 point and that is on page 44, the figure 9-2,  
2 radiological emissions to air. I wondered if you  
3 could just make a comment about the increasing  
4 trend particularly in iodine 131?

5 MR. SMITH: I could address that.

6 The increasing trend on iodine 131  
7 was a result of most recently a failed -- some  
8 failed fuel on a single bundle. That bundle was  
9 removed during the outage on D1 that we are  
10 presently coming out of.

11 MEMBER BARNES: Okay. I will  
12 leave it there.

13 THE CHAIRPERSON: Ms McDill.

14 MEMBER McDILL: Thank you.

15 I have a number of technical  
16 questions.

17 On page 5 you have:

18 "The tritium removed is  
19 safely stored in a vault in  
20 stainless steel containers."

21 (As read)

22 Stainless steel is only stainless  
23 because of the chromium oxide layer. What is the  
24 lifetime of a stainless steel container, roughly?

25 --- Pause

1 MR. CHARLEBOIS: For the record,  
2 Pierre Charlebois.

3 The tritium oxide is actually  
4 embedded in a titanium metal which is contained  
5 within the stainless steel containers. If I  
6 recollect correctly, the containers themselves in  
7 fact are designed to be able to house the tritium  
8 oxide for very long periods of time. It decays  
9 progressively over time with a 12.5 years half  
10 life.

11 MEMBER McDILL: Thank you.

12 My next question is relating to  
13 page 20. It is the second bullet:

14 "Insufficient attention to  
15 the components supplied by  
16 the manufacturer prior to  
17 installation, a failure to  
18 identify the components were  
19 not nuclear grade."

20 (As read)

21 How is that being dealt with now,  
22 please?

23 MR. IAFRATE: For the record, my  
24 name is Dominic Iafrate.

25 This event was caused by a

1 conventional PRV. The internal component had been  
2 changed at the manufacturer to a different  
3 material that was more susceptible to radiation  
4 damage. The original specification for this PRV  
5 was conventional grade, not nuclear grade.

6 Subsequent or before this we went  
7 through and changed all the critical PRVs to  
8 nuclear grade and fundamentally our ongoing  
9 environmental qualification program, as well as  
10 our configuration management program that we have  
11 in place, will reduce the occurrence of these type  
12 of events.

13 MEMBER McDILL: Thank you.

14 My next question relates to a  
15 previous question on passing and failing on  
16 page 24.

17 The perennial question: What  
18 constitutes a pass, 50 per cent, 60 per cent,  
19 70 per cent?

20 MR. SMITH: A pass is 70 per cent.

21 MEMBER McDILL: Thank you.

22 MR. SMITH: For the record,  
23 Gregory Smith.

24 MEMBER McDILL: That's a "B".

25 --- Pause

1                   MEMBER McDILL: My next question  
2 is in CMD 02-H23.

3                   Please explain the change in the  
4 design of the strainer? I'm sorry, it's page 22,  
5 section 3.3.4.3.

6                   Staff might want to address that  
7 one?

8                   MR. BLYTH: For the record, Jim  
9 Blyth.

10                  There was an event in Sweden  
11 several years ago where an incident caused  
12 insulation on some piping to come off. There was  
13 water present. There are strainers on the floor  
14 that are supposed to catch this debris so that the  
15 water can be returned to the system and they  
16 plugged. The insulation plugged. That became  
17 internationally -- around the world reactor  
18 operators realized that this was a potential  
19 problem.

20                  What has been done in Canada is,  
21 for one thing, the original strainers have been  
22 replaced. They have been replaced with much  
23 larger strainers with much larger surface areas  
24 and other design changes to minimize the potential  
25 for plugging at a time when you are trying to

1 recover water from the floors and the sumps and  
2 return them to the heat transport system. So this  
3 is taking -- these kinds of changes are being  
4 implemented at all reactors in Canada.

5 OPG can probably provide more fine  
6 detail about the design.

7 MR. CHARLEBOIS: Pierre  
8 Charlebois, for the record.

9 Yes. Additionally, we in fact had  
10 to look at the type of insulation and the type of  
11 materials that were used in our power plant.  
12 Using that type of material we had to look at the  
13 zone of influence for a potential pipe break, like  
14 how much debris would get generated, and then we  
15 did a number of tests using facilities in our  
16 labs -- well, at Chalk River for example -- to  
17 determine the special type of strainers, the size  
18 and so on, in the surface areas that would be  
19 required to make sure that we had sufficient  
20 capacity to deal with the potential debris.

21 So these tests have been conducted  
22 and we have been able to determine the size of  
23 strainer installation for Darlington. I believe  
24 it is about a fivefold increase in surface area  
25 that we are making to the strainers.

1                   MEMBER McDILL:  Were these full  
2                   scale tests or numerical models or a combination  
3                   of scale size plus numerical models?

4                   MR. CHARLEBOIS:  Some of the tests  
5                   are mock -- it is obviously not full-sized because  
6                   we are talking of strainers that are a size of  
7                   about 1,000 square feet.  So they are essentially  
8                   mock-ups, if you want, of smaller size, but they  
9                   do represent the actual physical arrangement in  
10                  terms of size of openings in the strainers as well  
11                  as the type of debris that we would get deposited  
12                  and it is just scaled up.

13                  MEMBER McDILL:  Thank you.

14                  THE CHAIRPERSON:  Dr. Giroux.

15                  MEMBER GIROUX:  Madam Chair, with  
16                  your permission I will hold them until Day 2.  
17                  Would that be all right?

18                  THE CHAIRPERSON:  Do we have the  
19                  concurrence of OPG with that?

20                  MR. BROWN:  OPG concurs with that.

21                  THE CHAIRPERSON:  I have a  
22                  question, I think just for clarification.  I think  
23                  the chart with regards to meeting safeguard  
24                  requirements was "succeeds" and I think your  
25                  wording was "meets".  I just think for the record

1           it is important to give yourself credit I guess  
2           for an "A". So just to note that.

3                           MR. LEBLANC: This hearing is to  
4           be continued on the 16th of January 2003 here in  
5           the CNSC offices. The public is invited to  
6           participate either by oral presentation or written  
7           submission on Hearing Day 2. Persons who wish to  
8           intervene on that day must file submissions by  
9           December 17, 2002.

10                           The hearing is now adjourned to  
11           January 16, 2003.