



Stakeholder Session Notes

OPG's Darlington Power Reactor Operating Licence Renewal Application

February 12, 2015

Conference Room 1A
Darlington Energy Complex
1355 Energy Drive, Courtice

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1. Welcome and Introductions, Robin Manley, Director, Nuclear Regulatory Affairs & Stakeholder Relations

Robin Manley, Director Nuclear Regulatory Affairs & Stakeholder Relations at OPG welcomed participants and provided context for the day's session. He explained that the licence renewal application is for the Darlington Nuclear Generating Station and that OPG was seeking a 13 year licence term. OPG is taking the opportunity to ensure stakeholders are informed and have the opportunity to ask questions about the application early in the licensing review process. OPG has planned three stakeholder sessions, among other things, in part because OPG committed to the CNSC to facilitate stakeholder engagement in the licence renewal process. The hearing is scheduled in two parts: Part One in August 2015, where OPG presents to the Commission and Part Two in November 2015, which is where the public and stakeholders can intervene and is typically held locally.

All participants were provided a binder which contained a copy of the licence application and addendum, the Integrated Improvement Plan and copies of the presentation materials.

Donna Pawlowski of OPG, in her role as Facilitator, outlined the logistics and round-table format for the session. Brief self-introductions, i.e. name and affiliation, followed.

2. Application Overview, Richard MacEacheron, Manager, Refurbishment Licencing Support

Mr. MacEacheron provided an overview of the Canadian Nuclear Safety Commission (CNSC) licence renewal process as well as the structure and content of OPG's licence renewal application materials (original submission and addendum). He noted that OPG is seeking a 13 year licence term to cover refurbishment of the four Darlington units.

He stated that OPG relies on a managed system to ensure Darlington is operated and maintained using sound nuclear safety and defence-in-depth practices and to ensure radiological risks to workers, the public, and environment are low. He noted that the application and supporting documentation demonstrates that OPG has a robust managed system in place to ensure Darlington is safe today and will remain so throughout requested licence term.

He explained that the CNSC is in the process of implementing new regulatory requirements for longer term licences based on Periodic Safety Reviews (consistent with international practice). The governing documentation "Reg Doc 2.3.3 *Integrated Safety Reviews*" is expected to come into effect in 2015, and was posted in draft form for public review and comment in 2014. OPG is relying on the draft for its planning purposes.

He then provided a high level overview of two areas in the current application:

- Section 5: Safety Analysis – in this area Mr. MacEacheron discussed the differences between Deterministic Safety Analysis (Safety Report) and Probabilistic Safety Analysis (PSA), and noted that an updated Darlington PSA (referred to as the Darlington A Risk Assessment or DARA for short) would be prepared and a public summary version will be posted on OPG's web-site.
- Section 7: Fitness for Service – in this area Mr. MacEacheron discussed the process used to inspect Major Components (Fuel Channels, Feeders and Steam Generators) and how that helped determine which components required replacement.

He noted that particular focus will be on the Environmental Protection and Emergency Management as they are areas of much stakeholder interest.

A question was raised regarding international standards on licensing periods for operating plants. It was noted that the CNSC is moving towards a longer licence period consistent with international practice.

A question was asked regarding OPG's plans for subsequent licences (would they be shorter or longer term). Again, it was noted that CNSC is moving towards longer licence period. OPG will have to conduct a Periodic Safety Review as part of licence renewal and 10 years is considered the appropriate interval to conduct these reviews.

If OPG did not receive the requested licence term, it would not be a significant problem, OPG prefers a longer licence term to cover the refurbishment timeframe, however, can adapt to a typical 5 year licence term.

Stakeholders asked about the public review process for CNSC regulatory documents; and the nature and level of regulatory oversight that would be in place over the requested licence term. While OPG doesn't speak for the CNSC, OPG noted that the CNSC implements its own public consultation process, it posts draft documents on its web sites and seeks public comment. For those who are interested, the CNSC also offers an e-notification where stakeholders can register to receive notices of proposed regulatory documents posted for public comment.

Regarding regulatory oversight throughout the requested licence period, OPG explained that there are many opportunities outside of the licence renewal process for OPG to interact with the CNSC. CNSC conducts annual reviews and rates OPG's performance, OPG updates the Commission regularly on station issues and there are full time CNSC resident inspectors present on site. It is anticipated that there will be additional CNSC inspection activities during refurbishment; however, this may not translate into additional site inspectors.

It was noted that of the total Darlington site, anything inside the fenced area is covered under the operating licence.

A question was raised regarding sensitive land uses within 3km of the plant; OPG noted that this is an area of responsibility of the provincial government. The Provincial Policy Statement had been updated in 2014, with recognition that *Major facilities* and *sensitive land uses* should be planned to ensure they are appropriately designed, buffered and/or separated from each other. Further OPG reviews land use applications near its generating facilities and provides comments if in-compatible land uses are proposed.

3. PROL – Emergency Preparedness, Carol Gregoris, Manager, Emergency Preparedness

Ms. Gregoris, Nuclear Emergency Preparedness Manager noted that Darlington's emergency response plans meet and exceed Regulatory requirements. The plans are robust and frequently exercised, the staff is well trained, and the equipment and facilities required to respond are poised. She provided an overview of the Onsite Emergency Response and Emergency Notifications steps and discussed the nature of Radiological Surveys that would be undertaken during certain types of emergencies.

Questions and discussion centred on the time and nature of public notifications during an emergency; whether emergency instructions would be provided to residents outside 10km; whether there would be instructions on food ingestion during an emergency; what happens to livestock living in 10 or 50 km zone; and whether OPG goes into schools to educate students on nuclear emergencies. OPG replied that public notifications are the responsibility of the provincial and local government, and that there are communications on all these matters. OPG assists in these matters where requested but does not itself go into schools to educate students on nuclear emergencies.

Ms. Gregoris discussed the new requirements for Potassium Iodide (KI) pre-distribution to all households, businesses, and institutions in the 10 km radius of the nuclear facilities by the end of 2015. OPG is working with the Region of Durham, the City of Toronto, Office of the Fire Marshal & Emergency Management (OFMEM), Ministry of Health and Long Term Care (MOHLTC), Health Canada, and others.

Discussion focused on potential side effects of KI pill ingestion, implications for pets, utility for those without a thyroid, and public instructions for KI pill use. Ms. Gregoris explained that prior to distribution a public information campaign would be undertaken to address these and other potential questions from residents. OPG is working with the accountable provincial and municipal agencies on this.

She noted that in May 2014 new 'Flashlight' public information brochures were distributed to households in the 10 km zone, and that additional public information including specific information on KI will accompany the KI distribution in 2015.

A question was raised regarding the "science" behind the 3 km and 10 km zones, and OPG agreed to provide an explanation.

Ms. Gregoris closed her presentation with an overview of the Exercise Unified Response (ExUR) which took place in May 2014, a three day full scale nuclear emergency response exercise the purpose of which was to test the preparedness and integration of the nuclear emergency plans including over 50 agencies. The response demonstrated that the plans are robust, and that the agencies are able to respond to a significant nuclear event in Ontario. Lessons learned will be used to improve plans and overall interoperability.

Questions and discussion in this area centred on: confidence in the emergency response system as a whole; the availability of qualified staff at Unit 0 during emergencies; and whether Fukushima had changed landscape on how OPG operates. There was some discussion as to whether communications during the ExUR were timely for all participants.

OPG replied that:

- Yes there is confidence in the emergency response system as a whole, the ExUR demonstrated the inter-operability of the system;
- OPG is required by licence to have sufficient trained staff always available; and
- Fukushima had changed the landscape on how nuclear power plants operate.

There was an interest in more information on evacuation plans and one stakeholder suggested that it would be helpful to have the Provincial agencies responsible for emergency management attend the Darlington relicensing hearing. OPG noted that at the Pickering hold

point removal hearing, Provincial agencies did attend.

4. PROL – Environmental Protection, Raphael McCalla, Director Environment Operational Support

Mr. McCalla, as Director of Environment Operational Support provided an overview of the key policies and programs relevant to this managed system, including OPG's Environmental Policy, Corporate wide EMS and Environmental Protection Program.

He discussed the framework to control emissions and provided some details on the following program areas:

- Ground water Monitoring ;
- Radiological Releases;
- Conventional Releases; and
- Unplanned Releases.

With respect to tritium emissions, he noted that 7,000 Bq/L is the provincial drinking water standard for tritium. OPG's tritium emissions are a very small fraction relative to the Provincial Water Quality Objective. Tritium concentrations are traditionally slightly higher as measured at the Oshawa Water Supply Plant than what is measured at the Bowmanville Water Supply Plant, which is probably due to lake currents.

He noted that radioactive emissions can be correlated to plant events. OPG uses station condition records and applies corrective actions and lessons learned in response to adverse conditions/events when monitoring reveals peaks in radioactive emissions. During refurbishment is it expected that radioactive emissions will increase when the reactor is first opened, however after that the reactor is basically shut down for three years and emissions are expected to be low. OPG plans to minimize emissions as low as reasonably achievable during refurbishment activities.

Mr. McCalla reviewed Program Improvements over the past few years, including reference to:

- The implementation of new chillers which eliminated the use of Ozone Depleting gases like CFC's;
- A de-chlorination system that ensures the final discharge from the condenser cooling water system does not exceed limits;
- A collaborative study with federal and provincial agencies to collect Round Whitefish as part of the Round Whitefish Action Plan; and
- A repeat of the 1980's round whitefish study, the results confirm low risk on round whitefish eggs and larvae from normal operation of the plant.

He closed with a discussion of the Refurbishment program and the expectations that had been sent for all workers, including contractors regarding the Environmental Management Program and Control and Monitor Releases of Nuclear Substances and Hazardous Substances.

A question was raised regarding invasive species; he noted that no new invasive species have been found near the plant, the most abundant invasive species living in the area is the Round Goby.

There was some discussion regarding activities that could impact station operations, from terrorism or industrial leaks. Mr. McCalla noted that the design of the intake structure at DNGS

was a deep water intake structure, different from that at Pickering, and was designed to minimize aquatic effects. It was noted that the potential for other activities to affect the station was addressed as part of the cumulative effects assessment conducted for the Environmental Assessment.

5. Darlington Refurbishment - Response to RD360, Richard MacEacheron, Manager, Refurbishment Licencing Support

Mr. MacEacheron provided a high level overview of the regulatory requirements for Life Extension of a Nuclear Power Plant, as described in the CNSC Regulatory Document RD-360, "Life Extension of Nuclear Power Plants" and the status of OPG's submissions including:

- An Environmental Assessment (EA) which assessed the environmental effects of refurbishment and continued operation. The EA concluded that the project, taking into account the mitigation measures identified in the EA, is not likely to cause significant adverse environmental effects. Mitigations measures & follow-up monitoring program activities have been identified, including design enhancements (i.e., Safety Improvement Opportunities) to enhance plant safety.

Two questions regarding the Safety Improvement Opportunities where: why increase to 3 channel system for Powerhouse Steam Venting System PSVS. The answer given was that a 3-channelized system offers improved reliability over the current 2-channel PSVS system. Regarding installation of another redundant Emergency Power Generator, EPG 3, a question was raised about how many EPG's are needed. The response was that only one EPG is needed, addition of the third EPG further enhances reliability of the emergency power system.

- An Integrated Safety Review (ISR), which was a systematic assessment of the existing plant to determine if the plant conforms to modern codes, standards and practices. The work demonstrated that Darlington complies closely with modern codes and standards and identified activities to enhance components and station conditions.
- A Global Assessment Report (GAR), which provides an overall risk judgment on the acceptability of continued operation, and includes an assessment to determine the extent to which the safety requirements of Defence in Depth identified in RD337 have been fulfilled. It verified the existence of multiple levels of barriers between radioactive materials and the environment.
- An Integrated Implementation Plan (IIP) which identifies the schedule for implementation of the safety improvements from the EA and ISR. It describes the work that will be implemented during the Refurbishment Outages and during normal plant operation during the Life Extension period.
- A Return to Service Plan, which covers the range of activities from completion of installation work to reactor power at 100% including modification commissioning and system restart activities. The "Return to Service Management Plan" outlines the processes that will be used to manage the commissioning and restart activities and demonstrate that all licence conditions have been met.

He noted that OPG as the licensee is required to obtain approval prior to the removal of established regulatory hold points, of which there are four:

- Phase A – Prior to Fuel Load;
- Phase B – Prior to removal of Guaranteed Shutdown State;
- Phase C – Prior to exceeding 1% Full Power; and
- Phase D – Prior to exceeding 35% Full Power.

A question was asked regarding the regulatory hold points and the timeframe between the four regulatory hold points. OPG replied that the timeframe to transition from one hold point to the next is depended on the amount of commissioning, testing and restoring systems and components to service. It wouldn't be hours but rather a number of days. Another stakeholder asked whether leeway time is built into the schedule to accommodate "hiccups" if need be. OPG indicated yes, it is considered during planning. A third question was whether a unit can go online earlier than planned if ready, OPG indicated that yes, that is a possibility.

There was some discussion regarding contractors on site. OPG clarified that emergency response plans include all workers on site, including contractors. The training cycle for workers depends on the specific nature of work. Training qualifications required for Nuclear Energy Workers (NEW) and non-NEW are slightly different, Nuclear energy workers require completion of Nuclear General Employee Training – other training is dependent on the type of work. The site is developing new parking lots to accommodate the contractor workforce, with spaces to accommodate up to 1,500 contractors. The licence period does not affect how OPG contracts work.

Discussion on refurbishment centred on the upfront preparations, whether OPG was setting a precedent with this project – the answer was "yes" and "no", this is not first refurbishment conducted in this industry, but it is the first with such extreme preparations. Lessons learned from other refurbishments are being applied such as building in efficiencies by using tools ahead of time in the training and mock-up facility. OPG may consider whether staff from other nuclear sites will be able to use the mock up facility. The old DNGS information centre has been converted to offices for contractors working on the Darlington site.

Other questions and discussion in this area centred on:

- How the province will make up power when the units are in an outage, particularly when Pickering is also scheduled to end commercial operation around 2020 – it was noted that this is the responsibility of the IESO;
- Plans for waste generated during refurbishment include waste segregation and disposal, reactor components processed and stored onsite, and used fuel is stored onsite in pools and dry storage; and
- When the licence to prepare the site (for Darlington new nuclear) expires (it was a 10 year licence, so 2020).

A stakeholder asked what percentage of skilled trades working on site would not work on the reactors. OPG didn't know but agreed to see if those numbers were available.

6. Stakeholder Issues / Discussion / Wrap Up, Facilitator

Stakeholders were asked to provide any further questions, comments or feedback regarding the day's session, in particular whether they found the day useful and whether they had any particular issues or concerns with the requested licence term. Where applicable, the questions and answers have been moved into the sections of the notes that related to the subject of the questions.

- The majority of participants felt that the day was helpful and informative;
- A number of participants stated that they support the longer term licence, because the resources/costs of repeated licence renewals is inefficient;

- A number suggested that these types of round-table sessions be held on a regular basis (perhaps annually) to keep staff fully informed and have an opportunity for two way discussion, these would also assist in succession planning purposes and for continuity of knowledge, not only for OPG, but for all stakeholders;
- A few suggested the Clarington council and perhaps some businesses be offered the same presentation; and
- It would be helpful to explain the nature and extent of regulatory oversight that exists at the plant, the many checks and balances that are in place and will remain in place over the licence term.

Mr. Manley thanked all attendees for their participation and the meeting adjourned.

All presentations used at this Stakeholder Consultation are posted on the OPG Darlington Licence Renewal website at:

<http://www.opg.com/generating-power/nuclear/stations/darlington-nuclear/Pages/Darlington-Nuclear-Licence-Renewal.aspx>

9. Meeting Agenda

DARLINGTON LICENCE RENEWAL Stakeholder Session/Technical Briefing Agenda - Thursday February 12, 2015		
Time	Topic	Presenter
8:00 – 8:30 AM	Continental Breakfast	
8:30 – 8:45 AM	Welcome, Greetings, Purpose	Robin Manley
8:45 – 9:00 AM	Introductions, Agenda and Facilitation	Donna Pawlowski
9:00 – 10:15 AM	Summary of Darlington Licence Renewal Application including question period	Richard MacEacheron
10:15 – 10:30 AM	Break	
10:30 – 11:15	<ul style="list-style-type: none"> Safety Control Area: Emergency Management incl. questions 	Carol Gregoris
11:15 – 12:00	<ul style="list-style-type: none"> Safety Control Area : Environmental Protection incl. questions 	Raphael McCalla
Noon – 12:30	Buffet Lunch	
12:30 – 1:00 PM	Darlington Refurbishment RD-360 Requirements (including Q&A) <ul style="list-style-type: none"> Environmental Assessment, Integrated Safety Review, Global Assessment Report, Safety Improvement Opportunities 	Richard MacEacheron
1:00 – 1:30	<ul style="list-style-type: none"> Scope of Work and Implementation Plan 	Richard MacEacheron
1:30 – 2:00	<ul style="list-style-type: none"> Return to Service Plan/Regulatory Hold Points 	Richard MacEacheron
2:00 – 2:15	Break	
2:15 – 2:45 PM	Feedback: <ul style="list-style-type: none"> What concerns do you have, if any, over the licence term? 	Donna Pawlowski
2:45 – 3:00 PM	Conclusions/Adjourn	

10. Participants

Organization	Participant
Municipality of Clarington	Faye Langmaid
	Catherine Carr
	Lori Gordon
	Basia Radomski
	Steve Brake
	Sheila Hall
	Ron Albright
	Gord Weir
	Marie Marano
Regional Municipality of Durham	Eileen Kennedy
	Alex Georgieff
	Dorothy Skinner
	Warren Leonard
Ontario Power Generation	Robin Manley
	Richard MacEacheron
	Chirasthi Mendis
	Fleur Ely
	Raphael McCalla
	Steve Lesiuta
	Carol Gregoris
Donna Pawlowski	