

DURHAM NUCLEAR HEALTH COMMITTEE (DNHC) MINUTES

Location

Durham Regional Headquarters
605 Rossland Road East, Whitby
Meeting Room – Regional Council Chambers

Meeting

In an effort to help mitigate the spread of COVID-19, this meeting was a virtual meeting so that the Presenters and Members could present and participate without meeting together in the Regional Council Chambers.

Date

September 18, 2020

Time

1:00 PM

Members that Participated

Dr. Robert Kyle, DRHD, Chair
Ms. Mary-Anne Pietrusiak, DRHD
Ms. Lisa Fortuna, DRHD
Mr. Raphael McCalla, Ontario Power Generation (OPG) (Presenter)
Mr. Loc Nguyen, OPG
Mr. Phil Dunn, Ontario Ministry of the Environment, Conservation & Parks
Ms. Janice Dusek, Public Member
Ms. Jane Snyder, Public Member
Ms. Deborah Kryhul, Public Member
Ms. Veena Lalman, Public Member
Dr. Barry Neil, Public Member
Dr. Lubna Nazneen, Alternate Public Member
Mr. Alan Shaddick, Alternate Public Member

Presenters & Assistants

Mr. Brian Devitt (Secretary)
Ms. Analiese St. Aubin, OPG (Presenter)
Mr. Frank Guglielmi, OPG (Presenter)
Ms. Tiasi Ghosh, OPG (Presenter)
Ms. Lindsay Park, OPG
Mr. Dave Smith, Canadian Nuclear Laboratories (CNL) (Presenter)

Regrets

Dr. David Gorman, Public Member

Mr. Hardev Bains, Public Member
Mr. Matthew Cochrane, Alternate Public Member

Robert Kyle opened the virtual meeting and welcomed everyone. Robert Kyle mentioned that today he received notice of Dr. Tony Waker's resignation as a Member of the DNHC representing Ontario Tech University (OTU). Tony recently retired from his University responsibilities as a Professor and Robert wished him well in his future endeavours.

Robert mentioned that Tony had served the DNHC very effectively for many years as an active Member and had made many valuable contributions including hosting DNHC meetings at the University in the fall each year.

Tony will be replaced by Dr. Kirk Atkinson, Director, Centre for Small Modular Reactors, and Associate Professor, Faculty of Energy Systems and Nuclear Science, OTU. Robert mentioned that he was very pleased to have Kirk become a Member of the DNHC and to participate in the next meeting.

1. Approval of Agenda

The Revised Agenda was adopted as written.

2. Approval of Minutes

The Minutes of June 19, 2020 were adopted as written.

3. Correspondence

3.1 Email dated June 19, 2020 directed to Brian Devitt, Secretary to the DNHC, from A.J. Kehoe, Durham Region Resident and Observer, as a follow-up to the June 19 DNHC meeting. Since only Members could ask questions during the virtual meeting, A.J. requested the opportunity to discuss several of his questions resulting from the progress reports by the Nuclear Waste Management Organization (NWMO) concerning its Site Selection Process and OPG concerning its Darlington Refurbishment Project. On July 7, 2020 Brian Devitt notified A.J. Kehoe that he contacted and confirmed Jo-Ann Facella of NWMO and Scott Berry of OPG were available to answer his questions and their contact information was provided.

3.2 Robert Kyle's office received an information release, dated August 14, 2020, from Jennifer Knox, Director, Nuclear Stakeholder Relations, OPG, providing an update regarding OPG's proposed plan to optimize the end of commercial operations at Pickering Nuclear. The proposed plan by OPG and the Independent Electricity System Operator is that Units 1 and 4 will operate until 2024 as permitted under the current Canadian Nuclear Safety Commission (CNSC) Operating Licence, while Units 5 to 8 would operate until

2025. OPG will need to seek regulatory approval from the CNSC to continue operating Units 5 to 8 to 2025 through a public hearing process.

4. Presentations

4.1 Progress Report by OPG concerning its Proposed Plan to Optimize the End of Commercial Operations at Pickering Nuclear until 2025

Frank Guglielmi, Deputy Vice-President, Pickering Nuclear, OPG, provided a presentation on the proposed plan to optimize the end of commercial operations at Pickering Nuclear to 2025.

Frank explained that as Pickering Nuclear approaches its end of commercial operations, OPG has a proposed plan to optimize the shutdown sequence of the reactor units as they move toward safe storage and eventual decommissioning of the station. The plan is supported by the Province of Ontario and OPG would seek a regulatory approval from the CNSC in order to operate to 2025, through a public hearing process.

Under the proposed plan Units 1 and 4 will shut down in 2024 as permitted under the current CNSC Operating Licence, while Units 5 to 8 would operate until 2025. The Independent Electricity System Operator (IESO) is projecting a significant and growing electricity capacity deficit of the Ontario electrical supply system beginning in 2023 that will be caused by:

- Ongoing extensive refurbishment programs on Bruce and Darlington Units.
- Planned shutdown of all 6 Units at Pickering in 2024 as per the current CNSC Operating Licence.

Frank explained that the key benefits of optimizing the shutdown of Pickering Units 5 to 8 to 2025 will:

- Help address the provincial projected electricity capacity deficits as identified by IESO.
- Provide incremental generation over the critical period of 2023 to 2025.
- Reduce greenhouse gas emissions caused by the need to use natural gas fired alternate electricity production.
- Help reduce the cost of electricity to rate payers.
- Protect highly skilled jobs in Durham Region and the province.
- Optimize costs during the transition to safe storage and future decommissioning.

Frank highlighted that the operational and safety performance of Pickering Nuclear has never been better. In 2019, the station achieved its best safety performance record in the station's history. For the extended operation of Units 5 to 8 to 2025 several planning factors will be implemented:

- Incremental Scope Optimization – completed.

- Cost Benefit Analysis – completed.
- Approval from the Ontario Government – completed.
- Periodic Safety Review – in progress until 2022.
- Approval from CNSC – in progress until 2023.
- Planned CNSC Public Hearing in 2023.

Frank mentioned several safety steps that will be implemented:

- Safely execute Incremental Scope within 3 new Outages planned for 2022, 2023 and 2024.
- Implement Integrated Implementation Plan Actions.
- Safely Shutdown Units as per the Shutdown Schedule of Units 1 and 4 in 2024 and Units 5 to 8 in 2025.

Frank or his associates will keep the DNHC updated on the progress of the proposed plan to Optimize the End of Commercial Operation at Pickering Nuclear to 2025.

4.2 Progress report by OPG concerning the Results of the 2019 Environmental Monitoring Program (EMP) for Darlington and Pickering NGSSs

Raphael McCalla, Director, Environmental Programs, OPG, provided a detailed presentation of OPG's 2019 EMP results for Darlington and Pickering NGSSs.

Raphael explained the Key Objectives of EMP are intended to:

- Demonstrate, independent of effluent monitoring, the effectiveness of containment and effluent control.
- Demonstrate compliance with limits on the concentration/intensity of contaminants/physical stressors in the environment.
- Provide data to assess the level of risk on human health and the environment and/or to confirm predictions made by environmental risk assessments.

The highlights of Raphael's 2019 EMP presentation were:

- The results of 6 Non-Radiological Emissions to air and 2 Non-Radiological Emissions to water for both Darlington and Pickering were in compliance and met all Environmental Compliance Approval limits.
- The results of the 6 Radiological Site Emissions to air and 3 Radiological Emissions to water for both Darlington and Pickering were a very small fraction of their Derived Release Limits (DRLs).
- The main contributors to the 2019 public dose were carbon-14, tritium and noble gases for Darlington NGS and tritium and noble gases for Pickering NGS.

- The 2019 public dose for Darlington NGS was 0.4 μSv , ~0.1% of the annual Canadian Nuclear Safety Commission (CNSC) annual regulatory limit.
- The 2019 public dose for Pickering NGS was 1.7 μSv , ~0.2% of the CNSC annual regulatory limit.
- Laboratory analyses of 1,015 environmental samples were performed for the 2019 dose calculations.
- The estimated annual background radiation for both Darlington and Pickering NGSs is approximately 1,400 μSv .
- The tritium concentrations monitored at Water Supply Plants (WSP) near the NGSs remained at a small fraction of the Ontario Drinking Water Quality Standard of 7,000 Bq/L and well below OPG's voluntary commitment of 100 Bq/L.
 - Bowmanville WSP – 4.78 Bq/L
 - Oshawa WSP – 6.57 Bq/L
 - Ajax WSP – 5.68 Bq/L
 - F.J. Horgan WSP – 4.65 Bq/L

To summarize, Raphael provided the following highlights:

- Darlington and Pickering NGSs radiological emissions remained a very small fraction of its DRLs.
- Annual public doses resulting from Darlington and Pickering were 0.1% and 0.2% of the CNSC annual regulatory limit respectively.
- The 2019 public dose calculations and EMP report was reviewed and verified by an independent third party.
- The 2019 EMP report was submitted to the CNSC on April 27, 2020 and it was available at opg.com since June 18, 2020.

Raphael explained that OPG conducted several other environmental monitoring studies that were referenced in the 2019 EMP report submitted to the CNSC. The highlights of the studies included:

Thermal Monitoring Programs

- The discharge of warm water through the condenser cooling water (CCW) system has potential to impact spawning success and larvae development of fish species.
- OPG performed a study of the Thermal and Ambient Lake Water Temperature to monitor and to understand the potential impacts from the Pickering and Darlington NGSs discharge of warm water to Lake Ontario.
- The average lake temperature at the Darlington Lake Current Monitor on December 1, 2018 and March 31, 2019 was 2 degrees C compared to a threshold of 6 degrees C.
- In conclusion, there is no indication of a warming trend that would impact spawning success and larvae development in the near term.

Impingement and Entrainment Monitoring Programs

- In January 2018, Pickering received an Authorization under the *Fisheries Act* for the impingement and entrainment of fish resulting from the water taking for the operation of its CANDU reactors.
- The Authorization requires OPG to offset all fish impacted by the intake station water cooling system.
- The Alewife species are known to be adversely affected by such events.
- In 2018, the impinged biomass was estimated to be 5616 kilograms or 1.15 kilograms per million cubic metres of station flow.
- The 2019 biomass impinged will be reported in 2020 EMP report to help determine the trend in fish impingement and entrainment.

Raphael mentioned his staff are 'looking ahead' to other studies in 2020:

- A supplementary study will be conducted to sample lake water at the outlet of the Darlington diffuser and to analyze the results of using a lower detection limit. This study was designed to remove uncertainty surrounding human exposure to hydrazine through drinking water and fish ingestion.
- A supplementary study will be conducted on the filtered and unfiltered effluent samples for analysis of aluminum in the Darlington CCW to clarify the risks to ecological receptors in Lake Ontario.
- The data from the studies will be used to inform the next iteration of the Darlington ERA due for completion in 2021.
- In 2019, an audit of the EMPs was performed by OPG's Nuclear Oversight Department. The assessment determined that EMP is being effectively managed in meeting the requirements of CSA N288.4-10.
- In 2020, no other supplementary studies are planned as part of EMP.

Raphael McCall or his associates will update the DNHC next year with the 2020 EMP report results. For more information on EMP, Raphael can be contacted at raphael.mccalla@opg.com.

4.3 Progress report by OPG concerning the Results of the 2019 Groundwater Monitoring Program (GWMP) at Pickering and Darlington NGSs

Tiasi Ghosh, Environmental Advisor, OPG, provided a detailed presentation of the results of the 2019 GWMP at Pickering and Darlington NGSs.

Tiasi explained the key objectives of the 2019 GWMP were to:

- Verify groundwater flow direction.
- Monitor changes to on-site groundwater quality to identify new issues in a timely manner and assess historical issues.
- Monitor groundwater quality at the site boundary to confirm there are no adverse off-site impacts.

Tiasi provided the highlights of the 2019 GWMP results at the Pickering NGS that included:

- 349 samples were collected from 135 sampling locations to analyse groundwater to characterize groundwater conditions and trends. The key locations/areas monitored were:
 - Upgrading Plant Pickering area
 - Units 1 and 2 and the Vacuum Building
 - Units 3 and 4 areas
 - Units 5 and 6 areas
 - Units 7 and 8
 - Units 1 to 4 Irradiated Fuel Bay areas
 - Units 5 to 8 Irradiation Fuel Bay areas
 - Site Boundary

Tiasi provided an overview map of these key locations monitored along with detailed graphs showing the laboratory results from 2009 to 2019 to help demonstrate the overall trend of tritium in the groundwater for the key locations that has trended down or remained constant.

Tiasi also mentioned the GWMP has confirmed:

- The groundwater flow direction has remained consistent from the previous interpretations.
- Monitoring of the site boundary groundwater quality results showed no indication of adverse off-site migration of tritium from the Pickering NGS.

Tiasi provided the highlights of the 2019 GWMP at the Darlington NGS that included:

- 178 samples were collected from 81 sampling locations to analyse groundwater samples to characterize groundwater conditions and trends. The key locations/areas monitored were:
 - Near Reactor Building areas
 - Site Boundary

Tiasi provided an overview map of these key locations monitored along with detailed graphs showing the laboratory results from 2012 to 2019 that confirmed:

- The groundwater flow was consistent with previous interpretations.
- The groundwater results in the Reactor Buildings areas demonstrated the tritium concentrations have remained constant or decreased.
- Monitoring the site boundary groundwater quality indicated that there was no adverse off-site migration of tritium from the Darlington NGS.

Tiasi's summary of OPG's 2019 GWMP included:

- At Pickering and Darlington, the groundwater flow pattern remained consistent with original interpretations.

- At Pickering and Darlington, groundwater data collected from key areas indicated that tritium concentrations remained constant or decreased that indicated stable or improved environmental performance.
- At Pickering, there was an emerging groundwater matter identified in 2019 at Unit 8. Corrective actions were undertaken to address the source and the on-going monitoring continues.
- At Darlington and Pickering, there was no indication of adverse, off-site migration of tritium from the NGSs in groundwater.
- The 2019 GWMP results for Pickering and Darlington were submitted to the CNSC for its review and comment.

Raphael McCalla explained that a GIS map was developed by OPG for both Pickering and Darlington NGSs. The GIS maps make it easier for the public to see trends and understand the groundwater monitoring results. A GIS map system was initially developed for Pickering NGS followed by one for Darlington NGS. Both GIS maps are now available for use on the www.opg.com under Regulatory Reporting.

Tiasi Ghosh or her associates will update the DNHC next year with the 2020 results of the GWMP for the Pickering and Darlington NGSs. For additional information, Tiasi can be contacted at tiasi.ghosh@opg.com.

4.4 Progress Report by the Canadian Nuclear Laboratories (CNL) concerning the Port Granby Project

Dave Smith, Project Lead, Historic Waste Management Office, CNL, provided a progress report on the Port Granby Legacy Waste Management Site since the last progress report to the DNHC on September 13, 2019.

Dave mentioned Canada's commitment to cleanup and safely manage the historic low-level radioactive waste (LLRW) is nearing completion and his highlights were:

- The original 2016 estimate was to relocate 500,000 tonnes of LLRW.
- The actual waste LLRW relocated is approximately 1.3 M tonnes.
- Covid-19 limitations on workplaces and staffing has slowed the progress.
- Restoration of the legacy waste management site is well underway with:
 - Installation of the East Gorge Groundwater Collection system
 - Topsoil and grass seeding for the south site will be completed in September 2020
 - Cell 1 waste grading, shaping and closure in planned for October 2020
- Capping and closing the Mound is underway and will completed in 2021.
- Activities at the Port Granby Project Waste Water Treatment Plant completed by the summer 2020 were:
 - Lake tanks removed
 - Bioreactor clean out
 - Equalization pond clean out

- Processed 706,012 cubic metres of liquid waste since inception
 - Processed 2,507,870 cubic metres of solid waste since inception
- Remediation verification of the area excavated for LLRW is nearing completion.

Dave provided a list of key activities to be finished:

- Continuation of capping layers and closing the mound in 2021.
- Removal of the detour and realignment of Lakeshore Road in the summer 2021.
- Internal site roads, final landscaping, demobilization in the summer 2022.
- Maintaining the very proactive Public Information Program that includes newsletters, tours and meetings with key stakeholders.
- Upcoming Public Information activities will include:
 - Annual update to the Municipality of Clarington
 - Port Granby Citizens Liaison Group meeting
 - Project Overview with Ontario Tech University
 - On-going discussions concerning long-term monitoring and community end use

CNL staff will update the DNHC on the progress of the Port Granby Project next year. More information can be accessed at info@phai.ca and Dave Smith can be contacted at dave.smith@cnl.ca or 985-885-0291. The historic Waste Management Office is located at 115 Toronto Road, Port Hope, ON L1A3S4.

5. Communications

5.1 Community Issues at Pickering Nuclear

Analiese St. Aubin, Manager, Corporate Relations and Communications, Pickering Nuclear, OPG, provided an update on Community Issues at Pickering Nuclear and the highlights were:

- Pickering Units 1, 5, 7 and 8 are operating at or close to full power.
- Pickering Units 4 and 6 are in maintenance outages.
- Pickering hosted the COVID-19 modified *Tuesdays on the Trail – PowerON Tuesdays Program* in July and August with its community partners. Together, they provided free educational and environmental-based activity kits for local families. The participants in the Program made donations that helped local charities provide hundreds of food baskets to those in need.

Analiese St. Aubin, Manager, Corporate Relations and Communications, Pickering Nuclear, OPG, can be reached at (905) 839-1151 extension 7919 or by email at analiese.staubin@opg.com for more information.

5.2 Community Issues at Darlington Nuclear

Analiese St. Aubin, Manager, Corporate Relations and Communications, Pickering Nuclear, OPG, provided an update on the Community Issues at Darlington Nuclear and the highlights were:

- Darlington Units 1, 2 and 4 are operating at close to full power.
- Darlington Unit 3 is undergoing refurbishment.
- Darlington hosted the COVID-19 modified *Tuesdays on the Trail – PowerON Tuesdays Program* in July and August with its community partners. Together, they provided free educational and environmental-based activity kits for local families. The participants in the Program made donations that helped local charities provide hundreds of food baskets to those in need.
- In June 2020, Darlington submitted its application to the CNSC to renew the Darlington New Site Application Licence that was granted in 2012. The ten-year licence was granted after the acceptance of the environmental assessment by the joint review panel of the CNSC and Canadian Environmental Assessment Agency and it expires in 2022. The CNSC will hold a public hearing to consider the application in 2021 and no date has been set.

Leah Bourgeois, Manager, Corporate Relations and Communications, Darlington Nuclear, OPG, can be reached at 905-623-6670 extension 7038853 or by email at leah.bourgeois@opg.com for more information.

5.3 Corporate Community Issues at OPG

Analiese St. Aubin, Manager, Corporate Relations and Communications, Pickering Nuclear, provided an update on OPG's Covid-19 community response and the highlights were:

- In June, OPG donated 10,000 of its 3D printed face shields to the Ministry of Health for distribution to Indigenous communities and organizations in Ontario.
- This donation was in addition to the previous donation of 22,000 face shields for use across the province.
- Recently, OPG recently purchased enough materials to produce an additional 5,000 face shield.
- The recipients of the 5,000 donated face shields included hospitals and organizations around the province. In Durham Region, face masks were donated to the Alzheimer's Society, Community Care, Bowmanville Older Adults Association and Community Living – Oshawa and Clarington.

6. Other Business

6.1 Topics Inventory Update

Robert Kyle indicated the Topics Inventory will be revised to include the presentations made today.

6.2 Future Topics for the DNHC to Consider

Robert Kyle indicated the next DNHC meeting scheduled for November 20, 2020 will likely include:

- Progress reports by the Canadian Nuclear Safety Commission concerning the 2019 Safety and Performance Reports for the Darlington and Pickering Nuclear Power Plants.
- Progress report by OPG concerning the Darlington New Nuclear Site Preparation Licence Renewal Project that Expires in 2022.

7. Next Meeting

Location

Durham Regional Headquarters

Date

November 20, 2020

Time

1:00 PM

8. Adjournment 3:05 P.M.