

**Peterborough Community Liaison Committee
Meeting Record**

Meeting Date: June 14, 2022

BWXT NEC: Natalie Cutler, Director, Communications & Government Relations
David Snopek, Director, EHS & Regulatory Affairs
Ted Richardson, Director, Fuel Operations
Kathleen Augustin, Communications & Community Relations Specialist

CLC Members: J. Aherne, A. Gartenburg, J. Ingram, C. Lemelin, D. McGahern, J. Wadland.

Absent: B. Roxburgh, D. Gannon, R. Keenan, D. Mulumba.

Guests: Canadian Nuclear Safety Commission:

- Julian Amalraj, Senior Project Officer
- Kristi Randhawa, Radiation and Health Science Officer
- Kim Cunningham, Senior Communications Advisor

Action Items:

Action Item	Status
1. Share video content and infographics with CLC	Ongoing
2. Share CLC best practices from industry discussions with CLC	Open
3. Review adding more detail to website on the buildings occupied by BWXT	Open
4. Orientation Tours for CLC members	Open
5. 2021 Feedback: employment themed event/meeting	Open
6. 2021 Feedback: more awareness on natural uranium	Ongoing
7. 2021 Feedback: more CLC feedback on communications materials (website, social media, mailers, newsletters)	Ongoing
8. Ask if Canadian Centre for Science Communications offers ongoing courses	Closed
9. Check if there is a recording or transcript from Judicial Review	Closed
10. Ask human resources if there are high school job openings	Closed
11. Provide update on Indigenous relations – potential guest speaker	Open
12. Include land acknowledgement before CLC and other meetings	Open
13. Add research on natural uranium information from CNSC, MECP to website	Closed
14. Potential guest speaker – non-industry representative to speak about natural uranium	Open
15. Provide detail on escaping air, air changes, and blower door testing from facility	Closed
16. Provide information on pelleting timeframe (if it were to move) and what would be required to conduct pelleting in Peterborough (if BWXT were to move pelleting)	Closed
17. BWXT to review website and materials for gender specific language (i.e. man-made)	Open

Action Item	Status
18. BWXT to move “learn more” information on environment webpage to side bar	Open
19. BWXT to address newsletter questions and feedback on ACR data	Open
20. BWXT to address use of “siltation” in soil sampling report and provide details on SDK Environmental (online details and qualifying information)	Open
21. BWXT to share more information on defence-in-depth and safety measures in place with the community in materials	Open

Discussion Notes:

Due to the COVID-19 pandemic, the meeting was held virtually. The meeting began with a roundtable of introductions, overview of the agenda and a safety moment. Cutler shared that a draft land acknowledgement has been prepared and will be shared with the CLC member who asked to review it prior to use.

Augustin shared the recently updated Radiation webpage with the CLC and outlined the ways in which the page has been improved using feedback and information learned from the Canadian Centre for Science Communications workshop held earlier in the year. A CLC member noted that BWXT should reconsider the use of gender specific language, like “man-made.” Cutler thanked the CLC member and noted that the company is working on making this change throughout.

Cutler then asked the CLC to share any updates and feedback. She noted that the CLC Co-Chair was absent for the meeting but for any CLC member to share ideas, ask questions, and provide feedback. A CLC member mentioned that during the hearing, BWXT committed to adding more data to its website for the public and asked for an update. Augustin and Cutler shared that BWXT has created Environmental Dashboards and received and implemented input from a representative from Lake Ontario Waterkeeper who sits on the Toronto CLC. Augustin shared her screen to show where the Dashboards can be found online and showcased the Peterborough uranium example. A CLC member asked about BWXT’s connection with Lake Ontario Waterkeeper. Cutler explained that Lake Ontario Waterkeeper intervened at the public hearing and in advance of the hearing, BWXT toured representatives through the Toronto and Peterborough facilities. Cutler also noted that one representative from Lake Ontario Waterkeeper is a member of the Toronto CLC. A CLC member commended BWXT for the transparency of data on its website and asked whether there has been a change in thinking on fugitive air monitoring around the site. Snopek confirmed no change. Cunningham from the CNSC asked how BWXT has communicated these Dashboards. Augustin explained that the Dashboards are still in development and that they have been communicated to the CLC. Augustin also shared that once the Dashboards are shared on a larger scale, BWXT can pull web data to see if they are a popular hit on the website. Augustin noted that it was a small group of community members who requested this extra data and that for many it might not be very digestible without further context. Amalraj from the CNSC mentioned it would be helpful for the Dashboards to be moved closer to the top of the webpage. Augustin shared that this change will be made, but explained that the reason it was moved to the bottom of the page was based on feedback

and lessons learned from the CCSC workshop. A CLC member shared that during discussions with a neighbour they had received some feedback on the recent community newsletter. The CLC member noted that the middle section on the Annual Compliance Report (ACR) was technically heavy, was inconsistent with units across the tables throughout and recommended there be more clarity on the results presented. The CLC member also questioned why there was 2020 and 2021 data for some tables but not others for comparison. The CLC member continued to share that the beryllium soil highest concentration of 0.52 µg/g posted in the newsletter and ACR was not correct as the number shared in the soil sampling report for 2021 was 0.55 µg/g. Cutler thanked the CLC member for the feedback and noted that BWXT would review the feedback and concerns and respond to the CLC after it has been reviewed internally. Two CLC members questioned the use of the term “siltation” in the 2021 soil sampling report and requested BWXT share why this terminology was used and how that sampling was conducted. A CLC member also asked if BWXT could share details on SDK Environmental (the company that conducted the soil sampling) as the CLC member could not find information online and requested more detail on their qualifying information.

Next, Cutler shared that there have been no public disclosures made since the last meeting and noted that the public website (nec.bwxt.com) is up-to-date with all past public disclosures. Cutler shared that there were many questions posed at the last meeting and shared she had some updates to those questions:

- Does Canadian Centre for Science Communications offer ongoing courses? No, it appears they offer customized workshops.
- Is there a recording or transcript from the Judicial Review? We checked online and it doesn't appear that a transcript or recording is available.
- Does HR have any high school job openings/postings? We asked HR and they said postings are not shared for high school students as all employees must be over 18 to be hired.
- Can you include Land Acknowledgements before meetings? Yes. Plan to have one ready for the next meeting.
- Can you add more research on natural uranium to website? Yes, more research and external links have been added to our website.
- What would the pelleting timeframe be if it were to move and what would be required to conduct pelleting in Peterborough? If BWXT plans to move pelleting, the company would be required to complete a commissioning report and the timeframe would likely be 2-3 years from deciding to conduct pelleting in Peterborough to actually beginning the process in Peterborough.
- Questions on escaping air, air changes, blower door testing. Snopek outlined that the beryllium coating (substrate coating onto metal) is conducted in an enclosed area held at negative pressure. He shared that exhaust draws from the room and we monitor the negative pressure and alarms will sound if negative pressure is lost. Snopek shared that in the bundle assembly area we do not require the same ventilation as we use solid pellets and the potential for uranium contamination is very low. He shared that measurements are taken right in the area where that operation takes place and that this has been conducted for a long time

with exceptionally low uranium concentrations. He noted that respirators are not required and employees work in this area all day for about 2,000 hours each year. He shared there is no concern for fugitive emissions. A CLC member asked if BWXT cleans the molds and if there is heating or gasification. Snopek shared that when the beryllium is deposited onto the substrate (strip of metal), it is done through a vapour deposition process. He shared that the tubes are made in Arnprior and is not done through a molding process, but that thick walled pipes go through several reduction processes to thin the walls. A CLC member asked what vapour deposition means. Snopek shared that small amounts of metal are heated locally and condenses to colder surfaces within the furnace. He continued to note that it is only in vapour form in the furnace and once the temperature drops, it condenses to the surface. Snopek shared that yes, beryllium is a light metal but that the ventilation system is designed to monitor emissions.

A CLC member asked the CNSC to provide some insight into why BWXT is not mandated to conduct offsite air monitoring. Amalraj from the CNSC noted that this meeting and feedback has been helpful to the CNSC to understand what the community needs for trust and safety. Amalraj asked if CLC members have been for a tour yet. Cutler shared that due to the pandemic, a tour had not yet been held. Amalraj shared that touring the site helps demonstrate the safety and monitoring in person and outlined that BWXT should do more to outline the defence-in-depth and safety measures in place. Amalraj asked if the CLC was consulted on newsletters. Cutler shared that at each meeting BWXT asks the CLC for feedback on materials and the website and each time she reminds the CLC to critique BWXT NEC communication materials, so that we can make improvements. Amalraj shared that the CNSC inspects BWXT regularly to ensure they are functioning as they should be. He noted there are regulatory requirements and that the CNSC requires BWXT to operate using the best available technology on the market. Amalraj shared that he wants to see the CLC give feedback and BWXT take the feedback and implement it. He shared that the CNSC plans to be in the community this fall and looks forward to engaging in person. A CLC member mentioned that he wasn't aware that the perception of safety was a licence requirement and noted that he felt this requirement isn't being met. The CLC member shared that they are concerned about human error and wanted to understand what recourse is available to have this requirement met. Amalraj shared that perception of safety is not a requirement, but that the dissemination of information to educate the public on information related to safety is a requirement. Amalraj also noted that BWXT is not the only facility near the public, but that there are many facilities around the world in public spaces and shared that the CNSC does benchmarking to compare. He continued to note that BWXT is one of the safest facilities based on data and facts and that this information needs to be better shared and understood by the public to help gain trust. The CLC member noted this context was helpful and informative but that they feel that the obligation of BWXT has not been met with regards to fugitive air monitoring. The CLC member noted that there has been insufficient information shared on why this monitoring is not required. Amalraj noted that the data and emissions from the site do not warrant ambient air monitoring. He shared that he would be happy to discuss further to share how conclusions were obtained and noted that the CNSC is working with the community to address this issue on public trust. Amalraj continued that the Environmental Risk Assessment and current operations do not

warrant this monitoring and that this was fully tested during the hearing, and that soil monitoring was added to the monitoring program.

Next, Snopek shared that each year BWXT and similar licensees submit an Annual Compliance Report (ACR) to the CNSC. He shared that this is a detailed report that outlines performance from the prior year and demonstrates that BWXT NEC has successfully met the requirements of the Nuclear Safety and Control Act. He shared the CNSC reviews the report, along with their information collected throughout the year, and forms a Regulatory Oversight Report for the Commission. He noted at the end of the year, the CNSC presents their report and data to the Commission at a public meeting and BWXT NEC appears before the Commission to answer questions. Snopek shared that the full 2021 ACR for BWXT NEC is posted on the public website at nec.bwxt.com.

Snopek proceeded to provide information on specific areas of the ACR.

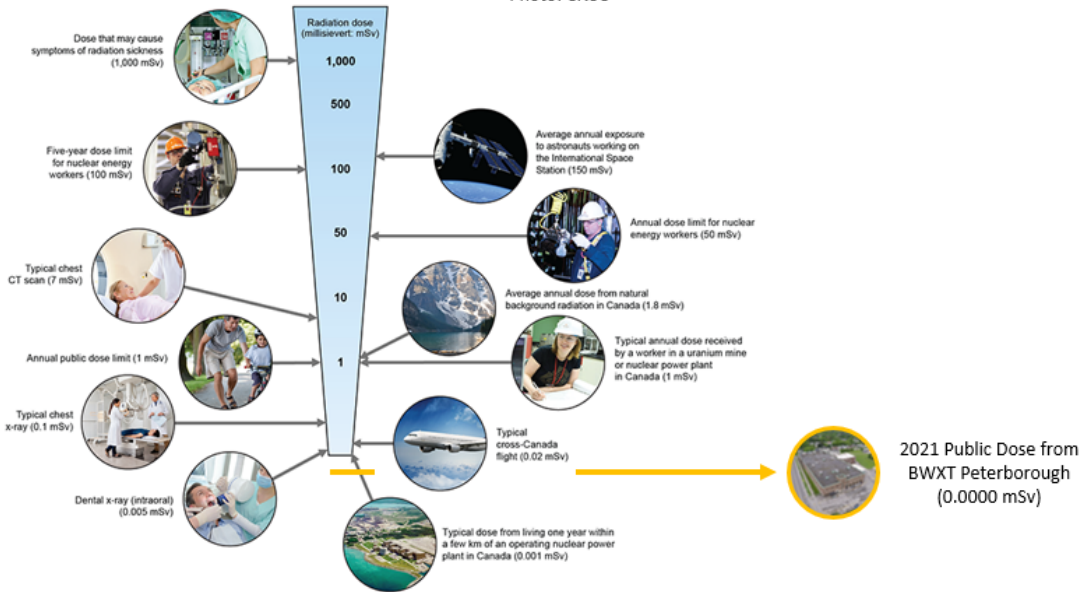
Public Dose: Snopek shared that public dose is a calculated value, measured in mSv (millisievert). He noted that the regulatory limit for members of the public is 1 mSv per year and the average natural background radiation exposure people living in Canada receive is 1.8 mSv per year. Snopek shared the table below to outline the public dose from 2021 and previous years. He continued to note that in some cases, the dose calculated from the site is smaller than background dose and therefore the public dose is zero. A CLC member asked if there is a difference between the scale of public dose and worker dose. Snopek shared that anyone in the industry that has potential to receive more than the public dose is a Nuclear Energy Worker (NEW) and that they are permitted a higher dose (50 mSv per year or 100 mSv per five-year span). Snopek continued that the industry does not just accept the highest dose and through the radiation protection program, finds ways to reduce dose using ALARA (as low as reasonably achievable). A CLC member asked what the highest NEW dose was in 2021. Snopek noted the highest NEW dose was under 10 mSv. A CLC member asked how dose is received to a human. Snopek shared that the radiation protection program looks at all potential routes of exposure. He shared that there is external radiation (fuel bundle is a sealed item that emits gamma radiation, which hits your body and creates a dose) and internal radiation (dose from consumption, injection or inhalation; there is no airborne uranium so therefore no internal dose calculated). Snopek shared the public dose is from external radiation. He shared that releases from the stack are insignificant and therefore there is no internal dose component for Peterborough.

Year	Estimated Annual Public Dose (mSv)	% of Public Dose Limit (1,000 µSv = 1 mSv)
2021	0.0000	0%
2020	0.0000	0%
2019	0.0115	1%
2018	0.0000	0%
2017	0.0000	0%

Snopek continued on to share a graphic from the CNSC website on radiation dose examples (see image below). He went through some of the dose examples and shared that the 2021 estimated public dose from the Peterborough site in 2021 was 0.0000 mSv.

Radiation dose examples

Photo: CNSC



2021 Air Monitoring (Stack) - Uranium: Snopek shared continuous in-stack sampling is conducted for the single process uranium air emission point. A sample of air is drawn across a filter capable of trapping uranium dust and the samples are analyzed by an independent laboratory. Due to the nature of the process and our stack sample results to-date, perimeter monitoring is not required. Snopek referred to the table below to outline that of the 48 samples taken, zero exceeded the action level.

Peterborough Stack Air - Uranium	2020	2021
Number of samples taken	48	48
Number of samples exceeding action level (1.0 µg/m ³)	0	0
Highest value recorded (µg/m ³)	0.003	0.003
Average value recorded (µg/m ³)	0.001	0.001

2021 Water Monitoring - Uranium: Snopek shared that waste water is generated from routine cleaning activities in the fuel bundle assembly area. All potentially uranium-contaminated waste water is held in a drum, filtered and samples are sent to an external laboratory for analysis. The waste water is only released to the sanitary sewer once the test results confirm it meets release requirements. Snopek referred to the table below to outline that no samples taken exceeded the action level. A CLC member asked why the 2021 amount of liquid discharged was so low compared to 2020 and why this information was shared. Snopek shared that the 2020 increase may have been due to the addition of the sort and stack process in Peterborough or merely the timing of infrequent releases. He noted this information is shared to demonstrate that there is not a lot of water used in the process.

Peterborough Water - Uranium	2020	2021
Number samples exceeding action level (3 ppm annual average)	0	0
Average uranium concentration at point of release (ppm)	0.20	0.22
Highest uranium concentration at point of release (ppm)	0.37	0.41
Total amount of liquid discharged (L)	1025	410

2021 Soil Sampling - Uranium: Snopek shared that in Ontario, background levels of uranium in soil are generally below 2.5 µg/g (parts per million (ppm)). The Canadian Council of Ministers of the Environment (CCME) established soil quality guidelines to protect human health and the natural environment. Soil sampling for uranium began in 2021 and will be conducted annually by a third-party consultant. Samples of surface soil are retrieved from locations surrounding the facility. The sampling methodology used is based on Ministry of the Environment Conservation & Parks guidelines. Snopek referred to the table below to outline that all samples taken were below the CCME guidelines. A CLC member asked if BWXT plans to conduct soil sampling each year. Snopek confirmed that yes, we were, as this was a requirement of the CNSC from the hearing. The CLC member mentioned there might be redundancy in sampling at the same locations as the CNSC. A CLC member asked what 2.5 µg U/g means. Snopek shared this means 2.5 micrograms of uranium per gram of soil.

Peterborough Soil - Uranium	2021
MECP Guideline (µg/g)	2.5 µg U/g
Minimum detectable limit (µg/g)	1.0
Number of samples taken	13
Average concentration (µg/g)	1.0
Highest concentration (µg/g)	1.0

2021 Air Monitoring (Stack) – Beryllium: Snopek shared that continuous in-stack monitoring is conducted for the three beryllium air emission points. A sample of air is drawn across a filter capable of trapping beryllium. The filter is analyzed for beryllium at an external laboratory. Stack monitoring is not required by the Ministry of the Environment, Conservation and Parks (MECP) as BWXT NEC’s emissions are deemed to be insignificant in accordance with MECP methodology. Regardless, BWXT NEC monitors the concentration of beryllium to air. Snopek referred to the table below to outline that of the 147 samples taken, zero exceeded the action level. A CLC member asked why there are three stacks for beryllium and one for uranium. Snopek shared that there happens to be three ventilation systems used for beryllium. A CLC member asked for clarification on the use of the word “continuous” and asked how frequently it is sampled. Snopek shared that the three stacks are sampled for one week and then the filter is sent for analysis and sampling begins again. He continued to note that the distinction the company is making is that the samples aren’t just happening once per month or week, but ongoing.

Peterborough Stack Air - Beryllium	2020	2021
Number of samples taken	144	147
Number of samples exceeding action level (0.03 µg/m ³)	0	0
Highest value recorded (µg/m ³)	0.001	0.003
Average value recorded (µg/m ³)	0.000	0.000

2021 Water Monitoring - Beryllium: Snopek shared that waste water is generated from equipment use and cleaning activities in the beryllium classified zones. Water passes through a weir settling system prior to release to the sanitary sewer. Regular sampling of the beryllium waste water is conducted via a 24-hour composite sample taken from the outflow lines which is sent for analysis externally by an independent laboratory. A CLC member asked how much water is used. Snopek shared that he did not have the number on hand but would estimate it would be thousands of litres.

Peterborough Water - Beryllium	2020	2021
Number samples exceeding action level (40 µg/L)	0	0
Average beryllium concentration at point of release (ppm)	1.4	0.9
Highest beryllium concentration at point of release (ppm)	9.1	3.1
Total number of samples analyzed for beryllium concentrations in water	20	17

2021 Soil Sampling - Beryllium: Snopek shared that in Canada, levels of beryllium in soil range from 0.25 mg/kg to 16 mg/kg and averages 0.75 mg/kg. The Canadian Council of Ministers of the Environment (CCME) established soil quality guidelines to protect human health and the natural environment. Soil sampling for beryllium began in 2020 and will be conducted annually by a third-party consultant. Samples of surface soil are retrieved from locations in accordance with a documented plan. The sampling methodology used is based on Ministry of the Environment Conservation & Parks guidelines. A CLC member asked which location in the soil sampling had the highest concentration in 2020 and 2021. Snopek confirmed the Park on Adeline Street off Patterson Street.

Peterborough Soil - Beryllium	2021
MECP Guideline (µg/g)	2.5 µg Be/g
Minimum detectable limit (µg/g)	0.5
Number of samples taken	13
Average concentration (µg/g)	0.50
Highest concentration (µg/g)	0.55*

*corrected from 0.52 which was initially reported in the newsletter, ACR and slide deck.

Cutler asked Amalraj from the CNSC if he had any updates to share. Amalraj noted that the CNSC has been actively engaging with Dr. Aherne from Trent University and Peterborough Public Health on ambient air monitoring and soil trends. He shared more information would be outlined at the Regulatory Oversight Report meeting in December. He shared that the plan was to begin ambient air monitoring in July but that due to storm damage to the CNSC lab and supply limits on filters, this will

be moved. He thanked BWXT for assistance with power, access to locations and security and noted that the monitoring would occur at four locations around the facility. Amalraj shared that ongoing inspections and community outreach are occurring, along with Indigenous community engagement. He shared that a few regulatory documents are open for public input and that the federal court judgment was made recently and that the CNSC has no comments at this time while the decision is being reviewed. He noted that CNSC has been engaging with Peterborough Public Health to see if there is opportunity to interact with the community regarding questions on the site. A CLC member asked the CNSC if there is third party verification of BWXT's testing and sampling. Amalraj noted that the CNSC conducts its own Independent Environmental Monitoring Program (IEMP) to verify that the public and the environment around licensed nuclear facilities are safe. He also shared the MECP does testing as well and that the last sampling for soil was done in 2005. The CLC member noted that this may lead to a lack of trust in that the "fox is guarding the chicken coop." Amalraj shared that the testing methods are reviewed and accepted and the additional sampling confirms that the results from the licensee are accurate. A CLC member asked for more information on the ambient air monitoring that will be occurring and requested more information on the CNSC change in IEMP soil sampling from total to partial digestion method. Amalraj shared that through public and CNSC expert input, they arrived upon a plan for the ambient air sampling and that this plan has been shared with Dr. Aherne. He continued that the CNSC can share some details about the air sampling. Amalraj also noted that the digestion method discussion for soil sampling was reviewed publicly during the hearing and that the CNSC would send more information. A CLC member suggested the CNSC review their IEMP analysis on representativity and recommended the IEMP be conducted more than every three years. Amalraj noted that the IEMP is a continuous process meant to verify the licensee's emissions and that it is not a substitute for the licensee monitoring. The IEMP is to confirm data reported by the licensee is accurate.

Before the meeting ended, Cutler mentioned the next meeting would likely be held in September and BWXT would like to hold the meeting in person and offer tours to new members if able. She noted that CLC members can reach out at any time and that they do not need to wait for meetings to ask questions. A CLC member asked if the agenda would be shared in advance of the meeting and Augustin confirmed it would be.

The meeting concluded.