



Oral Presentation

Exposé oral

**Written submission from
Eleanor Underwood**

**Mémoire de
Eleanor Underwood**

In the Matter of the

À l'égard de

**BWXT Nuclear Energy Canada Inc.,
Toronto and Peterborough Facilities**

**BWXT Nuclear Energy Canada Inc.,
installations de Toronto et Peterborough**

Application for the renewal of the licence for
Toronto and Peterborough facilities

Demande de renouvellement du permis pour les
installations de Toronto et Peterborough

Commission Public Hearing

Audience publique de la Commission

March 2 to 6, 2020

Du 2 au 6 mars 2020

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Filed by email on January 26, 2020

January 25, 2020

Senior Tribunal Officer, Secretariat Canadian Nuclear Safety Commission 280 Slater Street, P.O. Box 1046, Station B Ottawa, Ontario K1P 5S9

Sent by email cns.interventions.ccsn@canada.ca

RE: Intervention by Eleanor Underwood for the BWXT Licence Renewal (Hearing Ref. 2020-H-01)

To whom it may concern:

Eleanor Underwood requests to intervene in the hearing in the above referenced matter at Peterborough. By this letter, and pursuant to the CNSC's Rules of Procedure ("Rules"), Eleanor Underwood requests status to participate as an intervenor in the public hearing and an opportunity to present oral submissions. Please also attached my submission to the |Canadian Nuclear Safety Commission regarding the licence renewal of the BWXT facility.

Sincerely,

Eleanor Underwood

I. SUMMARY

I have made a review of the BWXT Environmental Risk Assessment and found it to be completely inadequate and lacking of required details. The monitoring program samples only one point for Uranium air emissions. The one and only sampling point is a ventilation stack. Not monitored are other ventilation systems, such as open doors, shipping and receiving and fugitive emissions. This is completely inadequate. To adequately sample for air emission BWXT should be required to; Use Meteorological data, presented but not used in the ERA (Environmental Risk Assessment) and conduct Plume Dispersion Modelling for the Plant area and properly design a community monitoring program. This would require air monitoring within the plant area and around the community. Beryllium is monitored at three locations. BWXT provides no supporting data to show how these sampling points and times where developed. As stated in the Uranium monitoring plan, any proper monitoring plan is based on Meteorological data that is used in the development of plume dispersion models that result in useful monitoring data.

Monitoring water discharges from the BWXT facility is limited to discharges into Peterborough Public Sewage System. There is no monitoring of runoff water, or groundwater. GE operated an electrical equipment manufacturing plant at the Peterborough BWXT plant location for 126 years. BWXT has been in operation at this location for 3 years. The BWXT facility has impacts from: 1. Runoff water entering storm drains, 2. from seepage of surface water into the ground water, 3. from discharges into

the public water treatment system.

BWXT has not conducted any monitoring of groundwater or surface water discharges. BWXT should be required to conduct groundwater and surface water studies within the general area of the Peterborough manufacturing facility. These studies should take into account materials used by GE and those used by BWXT. These studies should show seasonal ground water flows and directions along with properly designed monitoring points and monitoring frequencies.

BWXT proposes to add the process of pelleting to current operations. CNSC staff requires that BWXT implement ambient air monitoring. BWXT is going to implement monitoring similar to that in Toronto but no details are given. Any properly designed Air Pollution Monitoring program, at a minimum should be required to:

1. Use Meteorological data in the development of monitoring program;
2. Conduct Air emission Plume Dispersion Modelling Studies;
3. Collect 1 year of background information.

II. Detailed Discussion of Comments:

BWXT proposes to manufacture Pellets used in fuel cells for CANDU Nuclear Reactors. This is a change in the manufacturing processes conducted at the BWXT facility at Peterborough. Currently, BWXT imports contaminated parts from nuclear facilities for repair and assembles fuel cells used in CANDU Nuclear Reactors. (Reference BWXT application dated 2019)

On December 2018 BWXT prepared an Environmental Risk Assessment. The following is the Executive Summary of the BWXT Environmental Risk Assessment:

“BWXT Nuclear Energy Canada Inc. Environmental Risk Assessment Report Peterborough Facility December 2018 EXECUTIVE SUMMARY The Peterborough Nuclear Fuel Assembly Operations (NFAO) is operated by BWXT NEC and is located within the General Electric (GE) main plant complex between Monaghan Road and Park Street North in Peterborough. As per CNSC’s environmental protection series of regulatory documents, every applicant or licensee must have an ERA, commensurate with the scale and complexity of the environmental risks associated with the facility or activity and should update the ERA at least every five years and whenever significant change occurs in either the facility or activity. This ERA updates previous ERAs with current information, consistent with the N288.6-12 requirement to update ERAs on a minimum five-year review cycle. Effectively, the assessment evaluates the contaminants that are released to the air and water from the facility to determine whether there is any potential for health effects to humans through a Human Health Risk Assessment (HHRA) or non-human biota through an Ecological Risk Assessment (EcoRA). The general methodology followed for both the human health and ecological risk assessments are defined by Canada Standards Association (CSA) and Health Canada (Health Canada (2012a), CSA N288.1 (2008) and CSA N288.6 (2012)). This iterative methodology allows for the calculations to be refined in each iteration (or Tier) by removing conservatism.”

My comments: In any Environmental Risk Assessment it's important to evaluate the quality and quantity of data used in the assessment. Numerous questions need to be asked. How was the monitoring program developed? How many sampling points are monitored? When are the samples taken? Training of personnel collecting samples? Are just a few of the questions one should ask?

First, I wanted to examine the parameters being monitored.

The following statement is taken from the BWXT Environmental Risk Assessment: Integral to this assessment is to understand how the contaminants from the facilities operations enter the natural environment and interact with the Human and Ecological Receptors. Figures 2 and 3 illustrate the pathways of contaminant exposure to humans and ecological receptors, respectively. For airborne emissions, beryllium and uranium are monitored.

Second, how was the monitoring program developed? And how are samples taken?

The following statement was taken from the BWXT Environmental Risk Assessment. A single process uranium air emission point exists in the Peterborough facility. The R2 Area Decan Station exhausts through a High Efficiency Particulate Air and absolute filter. BWXT NEC performs weekly in-stack monitoring by removal of a filter capable of trapping uranium dust in the exhaust system. Filter papers are analyzed in-house and verified externally by an independent laboratory for testing by delayed neutron activation analysis. The minimum detection limit is 0.01 µg uranium. Results are compared to the previous results, and to relevant Internal Control Levels and Action Levels. BWXT NEC also uses alpha counting for uranium determination on process exhaust air samples. The Action Level for a process exhaust sample measurement is 1 µg uranium/m³. This level is set based on past facility performance. A result above the Action Level would be considered outside the concentration range expected for routine operation. Three beryllium exhaust vents are measured by inserting a probe into the duct centerline and withdrawing a sample of air. The air is passed through a filter capable of trapping beryllium. The filter is analyzed for beryllium using the Atomic Absorption method or the Inductively Coupled Plasma – Atomic Emission

My Comments: 1. It must be noted that only one sampling point exists for Uranium emissions at the Facility and only 3 monitoring points for Beryllium. The Environmental Risk Assessment goes to great lengths to present weather patterns and wind speeds and directions, and yet never uses that data within the Environmental Risk Assessment.

2. A well-developed Environmental Risk Assessment requires that sampling points be developed using Meteorological data. Wind speeds and directions, seasonal changes, and weather conditions should be used to develop a monitoring program. One sample location at this plant cannot provide useful Environmental Risk Assessment information.

3. Areas of the plant where materials are received and shipped must be monitored as

part of any monitoring program. Currently, BWXT does not provide any information at these areas.

4. Any Environmental Risk Assessment requires monitoring of ALL potential impact areas. The facility exhausts, plant boundary, and community areas all must be part of the monitoring program. The use of one point at only one exhaust point at the plant does not meet current standards for Environmental Risk Assessment.

5. ASTM International sets standards for Environmental Risk Assessment. ASTM E2020 sets minimum standards for Environmental Risk Assessment monitoring programs. At a minimum, BWXT should be required to: 1. Using meteorological data model expected plume dispersion and conduct sampling of points along expected plume dispersion. The use of a single monitoring point and presentation of meteorological data is completely inadequate.

BWXT should be required to conduct plume dispersion modeling, taking into account the entire plant area, all exhaust vents, all shipping and receiving areas, fugitive dust and open doors. BWXT should be required to collect 1 year of background data prior to the issuance of any new permit or any changes to existing permit conditions.

Water Monitoring My Comments: BWXT facility has impacts from: 1. Runoff water entering storm drains, 2. from seepage of surface water into the ground water within the facility area, 3. from discharges into the public water treatment system. The BWXT Environmental Risk Assessment provides no information concerning monitoring of discharge water in surface waters or groundwater. The report provides only a general discussion of state sponsored monitoring programs in the region. No monitoring data is provided.

The following is taken from the Environmental Risk Assessment.

“The Provincial Groundwater Monitoring Network (PGMN) assesses current groundwater conditions and provides a warning system for changes in water levels and water quality. PGMN Well ID: W0000225-1, shown in Figure 2.8 and located in concession 4, lot 5 of South Monaghan Township is the closest representative PGMN monitoring location with on-going monitoring. Table 2.7 uranium and beryllium sample data from 2003-2015 at maximum levels of 0.155 ppb and 0.01 ppb respectively. There are no known or suspected groundwater contamination plumes or subsurface contamination attributable to the operations, either on- or off-site. As such, detailed information on subsurface utilities and infrastructure is not required for the purpose of risk assessment.

The BWXT Environmental Risk Assessment provides NO information concerning potential discharges of contaminated water from the BWXT facility into surface or groundwater. The only statement made is “There are no known or suspected groundwater contamination plumes”.

At a minimum, BWXT should be required to model groundwater flows, develop a groundwater monitoring program and conduct 1 year of monitoring

Existing contamination of the BWXT facility.

General Electric operated a electrical equipment production facility for 126 years on the BWXT manufacturing site. During the manufacturing process of electrical equipment, such as electrical motors, capacitors, printed circuit boards, and other electrical equipment, GE used many metals, and fluids. Dielectric fluids, such as PCBs (Polychlorinated Biphenyls), Hexane, Heptane, Benzene, are just a few of the dangerous chemicals used by GE. In addition many metals, and various materials was used during the manufacturing process. PCBs, Hexane, Heptane and Benzene all have serious carcinogenic effects and are known to cause serious mutations in human and animal DNA.

To date GE and BWXT have not conducted any studies to determine the extent of any contamination at the BWXT site. There are no air emission studies beyond the plant boundary. There are no soil contamination studies on or around the BWXT facility. There are no groundwater studies to determine if ground or surface water contamination exists at the facility.

BWXT relies on a single air emission test, at one facility ventilation location to determine uranium air emissions for all of Peterborough. BWXT has never conducted any tests to determine if the one test site is adequate. BWXT has never conducted any tests or studies to determine if other air contamination exists in air emissions from the facility. Dioxin is a serious carcinogenic chemical, created from the breakdown of PCBs. PCBs was widely used for many years at the facility, yet no testing is conducted to determine if Dioxin exists at the facility.

At this time BWXT proposes to add additional processes and potential contaminates to the facility and BWXT. Additional potential contaminates and yet BWXT does not know anything about existing contamination of the facility.

BWXT should be required to fully and accurately describe any and all contamination of the site prior to the issuance of any new or additional permits.