Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

CMD 20-H2.79A

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Supplementary Information
Oral Presentation

Revised written submission from
Eleanor Underwood

Renseignements supplémentaires
Exposé oral

Mémoire révisé d'
Eleanor Underwood

In the Matter of the

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

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

Commission Public Hearing

March 2 to 6, 2020

À l'égard de

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

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

Audience publique de la Commission

Du 2 au 6 mars 2020

Canada

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From: Eleanor Underwood
Sent: February 18, 2020 9:58 PM
To: Interventions (CNSC/CCSN)
Subject: Attention: Louise **Revised Intervention** by Eleanor Underwood for the BWXT Licence Renewal Hearing (Ref. 2020-H-01) - CMD 20-H2.79

BWXT proposes to add the process of pelleting to current operations.

CNSC staff require that BWXT implement similar to that currently being done in Toronto.

On December 2018 BWXT prepared an Environmental Risk Assessment for this proposed change in operation. This Environment Risk Assessment is completely inadequate .

The following is from 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? What is the training of the personnel collecting samples? These are just a few of the questions one should ask. Yet no information is given in the risk assessment as to how sample points are determined and the number. Neither is any mention given to how often, at what time of day, weather conditions, etc. that the sampling is done. Sampling in the windy month of October would be significantly different than a sample taken in August, etc.

What are the parameters being monitored? Presently BWXT monitors for beryllium and uranium.

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. Air for airborne emissions, beryllium and uranium are monitored.

My Comment

Are there any other contaminants we should be monitoring for?

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:

The monitoring program samples only one point for uranium dioxide emissions and three for Beryllium The lack of background information on monitoring is notable. For example no information is given to how sample points are determined and the number. Neither is any mention given to how often, at what time of day, weather conditions, etc. that the sampling is done. Sampling in the windy month of October would be significantly different than a sample taken in August.

Any Environmental Risk Assessment requires monitoring of all potential impact areas. Areas of the plant where materials are received and shipped must be monitored as part of any monitoring program. BWXT does not provide any information on, or even monitor ventilation systems, open doors, shipping and receiving and fugitive emissions. The facility exhausts, plant boundary and community areas all must be part of the monitoring program. One sample location for uranium at this plant does not provide useful Environmental Risk Assessment Information and does not meet current standards.

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. 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. To adequately sample for air emission you would need to take the weather data and use a plume dispersion model to correctly locate the position and number of monitoring points around the perimeter of the facility. BWXT does not use weather data or a plume dispersion model though they talk about it in their risk assessment. What information BWXT presently collects is extremely limited in scope and access to the information is restricted.

Water Monitoring

BWXT facility has impacts from:

runoff water entering storm drains.

seepage of surface water into the ground water within the facility area.

discharges into the public water treatment system.

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.*

My Comments:

Monitoring of water is limited to what goes in to the Peterborough Public Water Sewage System. As uranium is heavy little to none would pass through the system but would remain in the pipes. So one would expect the levels to be minimal to nonexistent.

The BWXT Environmental Risk Assessment provides NO information concerning potential discharges of groundwater or seepage of surface water from the BWXT facility. The only statement made is “There are no known or suspected groundwater contamination plumes”. This lack of monitoring is completely unacceptable given the history of the BWXT location.

General Electric operated an 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 were 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 groundwater studies to determine if ground or surface water contamination exists at the facility.

In Summary;

BWXT relies on a single air emission test, at one ventilation location to determine uranium air emissions for all of Peterborough. BWXT uses three test points for Beryllium. BWXT has never conducted any tests to determine if this is adequate. BWXT has never conducted any tests or studies to determine if other air contamination exists in air emissions from the facility. There are no air emission studies beyond the plant boundary. There are minimal soil contamination studies on or around the BWXT facility. The data that BWXT provides for soil contamination is limited and questionable. Dioxin is a serious carcinogenic chemical, created from the breakdown of PCBs. PCBs were 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. Additional potential contaminates and yet BWXT does not know anything about existing contamination of the facility.

Prior to BWXT being granted an extension or licensing change an independent third party with recognized expertise should:

fully and accurately describe any and all background contamination of the site.

provide a ground water study to determine if ground or surface water contamination exists within the plant or outside the perimeter of the plant.

This background information and the groundwater study monitoring results should be made available to the public immediately upon completion.

All future monitoring, parameters and methodology should be determined by and completed by an independent third party with recognized expertise. Conducting and incorporating plume dispersion modelling into the monitoring and taking into account the entire plant area, boundaries of plant and community areas outside would be a good place to start.

All future monitoring of water or air emissions should be made available to the public on an ongoing basis.

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