



Oral Presentation

Exposé oral

**Written submission from
Chris Muir**

**Mémoire de
Chris Muir**

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

*This page was intentionally
left blank*

*Cette page a été intentionnellement
laissée en blanc*

January 27th, 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 cncs.interventions.ccsn@canada.ca

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

To whom it may concern:

I, Chris Muir, request to intervene in the hearing in the above-referenced matter at The Casa Do Alentejo Community Center at 1130 Dupont Street.

By this letter, and pursuant to the CNSC's *Rules of Procedure* ("Rules"), I request status to participate as an intervenor in the public hearing, and an opportunity to present oral submissions.

Please also find attached my submission to the Canadian Nuclear Safety Commission regarding the licence renewal of the BWXT facilities.

Sincerely,

Chris Muir

[REDACTED]
[REDACTED]
Toronto, Ontario
[REDACTED]

To the members of the Canadian Nuclear Safety Council,

My name is Chris Muir,

I've worked and lived in the Wallace-Emerson community, a block away from the BWXT facility for nearly five years now. My wife and I have raised two daughters in a beautiful little backyard with a garden, and a cherry tree we planted three years ago. Our backyard is our favorite room in the house.

The community is incredible – safe, and caring, with neighbours that look out for one another. I've made my career in advertising, and have a fairly balanced awareness when it comes to the sizeable amount of Nuclear Energy that Ontario relies on, as well as the hazards and pitfalls of Nuclear Energy and safety.

I have to admit, when I first moved into our current house, I had hesitations about moving in next to a Uranium Facility, but I did some top-level research, and based on the information available to me I was under the impression that the area was relatively safe to live in.

A week ago, I had the opportunity to attend a couple of community meetings. One put on by Zach Ruitter and the members of C.A.R.N., and then subsequently a meeting hosted by the CNSC. If I didn't have a family member who regularly participates in CNSC consultation, I'd have had no idea that the CNSC meeting was taking place.

Both meetings were revelatory for me, and have raised some unsettling questions that I've yet to have answered in a transparent, public manner.

Safety

I got the sense that the entire CNSC meeting was set up to reassure the public that the operation at the BWXT facility is safe, and poses no hazard to the community if it continues operation for another ten years. But there were a couple of key questions that I found were difficult for representatives from the CNSC to answer, time and time again.

Specifically, what is the *worst* that could happen, in the case of a fire or explosion at the plant?

We were assured over and over again that nothing could ever go wrong, and that safety was a primary concern, so why was it impossible to provide a *clear* and *transparent* risk-assessment publicly to the community?

The facts – as far as I understand them.

150 Tonnes of Uranium Dioxide, which is potentially Pyrophoric (flammable if it comes into contact with air), is processed at this facility every month.

9000 Gallons of Liquid Hydrogen is stored in an above ground tank in relatively close proximity to the warehouse where the Uranium dioxide is stored.

Here's the MSDS for Liquid Hydrogen:

(source:

<https://www.praxair.com/-/media/corporate/praxairus/documents/sds/hydrogen/liquid-hydrogen-gas-h2-safety-data-sheet-sds-p4603.pdf?la=en&rev=5c09c28f6acd421eb9330a58c3e5bd6a>)

Firefighting instructions : DANGER! Extremely cold, flammable liquefied gas. Take care not to direct spray onto vents on top of container. Do not discharge sprays into liquid hydrogen. Liquid hydrogen can freeze water rapidly. **If flames are accidentally extinguished, explosive re-ignition may occur. All personnel, including fire and rescue workers, should leave the area immediately.** Re-approach with extreme caution. When containers have cooled, move them away from fire area if safe to do so. If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive re-ignition hazard. **Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at**

locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device. Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.

Special protective equipment for fire fighters : Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.

Specific methods : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas containers to rupture. Cool endangered containers with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.

And the MSDS for Uranium Dioxide:

(source: <http://www.unitednuclear.com/msdsuraniumdioxide.html>)

Extinguishing Media:

Fires: **Material is flammable and may be pyrophoric.** Do not use water, use **dry chemical extinguishing agents.**

Fire Fighting Instructions:

Protective Equipment/Clothing: Wear a NIOSH approved positive pressure, self-contained breathing apparatus and firefighter turnout gear. Wear long sleeves and chemical goggles for eye protection.

Instructions: **Use flooding quantities of water until well after fire is out. If the product now wet with water starts to migrate to other areas, or even to the outside environment, dike it at once to prevent that from happening. Keep moist to prevent a dust hazard from starting.**

Material could be spontaneously flammable in air, remove material from the area of the fire if without risk.

As far as I can tell, in the case of a liquid hydrogen fire, everyone is to evacuate the area immediately, but in a Uranium Dioxide fire, the fire is to be contained and the 150-700 Tonnes of Uranium Dioxide are to be moved off-site to prevent it from burning.

It would appear that in the event of an accident, these hazardous materials need to be controlled in very different, almost contradictory manners, and pose significant risks to emergency personnel as well as to the population surrounding the plant.

What happens if the Liquid Hydrogen tank is on fire? Do firefighters let it burn, potentially igniting the Uranium? Or do they endanger themselves, removing the Uranium Dioxide while the Hydrogen tank is at risk of explosion?

How safe are my children who sleep within 100 metres of this tank? Would they be within the blast radius of a tank exploding?

I want nothing more than to feel that my family and I are completely safe, but reading the MSDS sheets for both of these materials, coupled with the lack of transparency on behalf of the CNSC and BWXT, leaves me feeling deeply concerned that there are significant safety issues that are not being communicated to the public. In addition, it would appear that these concerns are being minimized with the intent of reducing public awareness.

Emergency Planning

According to the 2016 census – there are 36,625 people living in Wallace Emerson. How many people would be affected by a *worst-case scenario* accident at the BWXT facility? What would be the financial impact of residents living in a contaminated zone, and is the company insured to cover residents' displacement in the case of an accident? Does the CNSC really want to approve this facility operating within such a densely populated, and ever-growing community for another ten years?

We've never seen a safety plan, evacuation plan, or ever been given notice as to what the risks would be in the event of an accident at the plant. Plus while we were reassured at the CNSC meeting that the plant was safe, I find it hard to believe that there's no risk whatsoever of an accident. If there is a risk, we deserve to know what it is, how likely, and what our precautions are to mitigate exposure.

What are the chemical extinguishing agents that firefighters need to use to extinguish a fire at the facility? How safe are they?

If the facility is safe, why isn't the community being made aware of the potential risks?

Self-Reporting

The CNSC monitors and conducts environmental tests at regular intervals. Which is great. And the sample levels are low, and/or negligible when it comes to detecting trace levels of Uranium Dioxide. Also great.

However, when it comes to emissions from the plant, I found it unsettling that the onus is on BWXT to report and monitor its emissions into the air and water, and that the limits are set at 760g/year for Air Emissions and 9000kg/year for Uranium dumped into the sewer. Even if BWXT comes nowhere *near* these emission levels, how are we to trust a council that's deemed these levels safe in the first place? I also found that in the case of any accident or "actionable" event at the plant, it's up to BWXT to report the incident.

Why does it make sense to let BWXT self-report its emission levels? Particularly in the case of an actionable event, does self-reporting not seem like a conflict of interest and/or a means of controlling transparency to the public?

The reported levels of airborne Uranium Dioxide emitted (from the BWXT website) is 46 grams over the past five years despite the plant processing 3500 Tonnes (or 3,500,000,000 grams for context). Doesn't that seem *abnormally* low?

Decommission

Eventually, the BWXT plant will have to be decommissioned. How will that process take place to ensure that Uranium Dioxide is not released into the air and water during demolition of the facility?

Summary

In summary, these are the requests that I put forward in regards to BWXT's application for license renewal:

1. I request that the *worst-case scenario* of an accident at the plant be made accessible in a transparent manner to the residents of Wallace-Emerson. This should include potential blast radii of both the storage facility and the hydrogen tank. If the plant is safe, please back up that claim by letting us know the absolute potential risks associated with an accident.
2. I request that the CNSC monitor Uranium Dioxide emission levels at the stack on a continual 24-hour basis, and report the emission levels to the community in a clear and transparent manner.
3. The CNSC has not made an adequate attempt to develop an emergency action plan in case of an accident at the facility. I request that the CNSC *immediately* coordinate with the neighbourhood of Wallace-Emerson *door-to-door* with a clear and direct emergency action/evacuation plan to mitigate a potentially catastrophic health risk to the community.
4. In consideration of the dangers associated with a fire involving such large quantities of potentially Pyrophoric Uranium Dioxide, as well as the explosion hazard presented by the 9000 gallons of liquid Hydrogen on-site, the CNSC should *not* approve a 10-year extension on the operating license, and should begin the process of decommissioning the facility immediately. It's indefensible that this plant was built within our city in the first place. Does the CNSC want to be culpable for a potentially disastrous, and clearly avoidable accident that threatens the lives of tens of thousands of residents?

Thank you for your time and consideration,

Chris Muir