Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

CMD 20-H2.121

File / dossier : 6.01.07
Date: 2020-01-27
Edocs: 6108468

Oral Presentation

Written submission from Peter Harris

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

Exposé oral

Mémoire de Peter Harris

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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Dear Sir / Madam:

RE: BWXT Nuclear Energy Canada's application to license FFOL-3620.1/2020

I am a resident of Peterborough and am a member of the local group CARN. I submit this Intervention to the CNSC to inform commission members as part of BWXT's application to renew and modify its Peterborough license to permit pelleting.

Section 1 Communication

I have submitted interventions to the CNSC previously, and my previous submissions have emphasized the failure of the BWXT's predecessor - GE-Hitachi to communicate with its neighbours under its license obligations. It has even been the subject of a member of parliament's request for a public hearing.

Again, I must register with the CNSC my concerns that BWXT has failed in its license obligations. Under section 2.2.2 of REGDOC-3.2.1 licensees are mandated to "define the target audiences, and the rationale utilized for their inclusion". One would expect that BWXT would pay close attention to the school community that is only 25 metres from its boundaries. I live approximately 800m from this plant and I have never received any printed materials from BWXT. More importantly, I live within the catchment area of Prince of Wales French Immersion program and I have never received printed materials from BWXT. BWXT, as was the case with GE-Hitachi has not defined its target audience.

In verbal communication with BWXT officials, they could not tell me where their printed materials went or exactly how many were mailed. They told me that Canada Post delivered their printed information. But CARN members who live just 400m from BWXT's facility do not receive BWXT's mailings consistently.

I would like to contrast this with CARN's attempts to inform area residents of its Information Night. CARN members can very precisely describe which homes received information and which did not. The diligent work of volunteers resulted in 230 attendees at CARN's information night.

BWXT's fall information night attracted only a handful of participants, most of whom were CARN members. On January 23rd, a BWXT/CNSC information night attracted what we estimated to be fewer than 25 participants. It was a similar story in Toronto. Both the CNSC and BWXT staff should realize that this is in no way a reflection of the interest in this community. It is a reflection of poor communication practices.

BWXT's failure to communicate also extends to its web site. For example, a hydrogen fire in what is supposed to be an anoxic environment was reported in CNSC document CMD20-H2. It is nowhere to be found on BWXT Toronto's public disclosure page. False alarms are reported - but not a fire.

Perhaps the most serious issue is BWXT's repeated misrepresentation of their intentions. BWXT writes on its web site that "**BWXT NEC is seeking the flexibility during the proposed next 10-year licence period to permit BWXT NEC to produce natural uranium pellets at both the Peterborough and Toronto facilities**." This language was clearly intended to obfuscate their plans.

Unfortunately, this phrase was repeated so often in the media, together with" there are no business plans to manufacture pellets in Peterborough at this time" that it created confusion as to BWXT's intentions. (The CNSC also jumped on board and adopted this language in CMD 20-H2.1, repeating the word "flexibility" in the context of BWXT's license renewal 4 times!)

It wasn't only the media that were party to this obfuscation. "I have also been assured that there are no plans to move their pelleting operations to this plant." is a direct quote from Peterborough's mayor.

The CNSC must bear responsibility for much of these issues. Communication is one of the most important conditions in BWXT's license. It is the one condition that the public can easily measure. For the public, it therefore is a direct reflection of the CNSC's capabilities as a regulator.

The CNSC has consistently failed to establish clear communication protocols from its licensees. This must change if the CNSC wishes to command the public's respect.

As a consequence of these failures in communication, I respectfully recommend the following;

1. **Demand communication strategies from licensees that work.**
2. **Ensure that the school community in particular is properly informed.**
3. **Demand clear and concise communication from licensees, particularly around license renewal**
4. **Restrict the period of BWXT's license until improved practices are implemented.**
5. **Due to the confusion that BWXT's communication has created in this community, BWXT's application for the "flexibility" to begin pelleting should be denied. Since it has no business plans to manufacture pellets in this city, the denial should have minimal effect on BWXT's operations.**

BWXT should apply to pellet when its intentions are clear and it can clearly communicate those intentions.

Section 2 - Beryllium Stack Locations

In a previous intervention submitted to the CNSC, I raised the issue of the location of beryllium point sources at the Ge-Hitachi site on Monaghan Road. In 12 years of asking, I have yet to receive a satisfactory answer from GE-Hitachi, BWXT and the CNSC as to why this plant's most dangerous emissions are so close to a public thoroughfare and so close to the junior playground of an elementary school.

Trends seen in IEMP soil testing at this plant show a very concerning increase of beryllium soil levels, particularly those in the junior playground of the elementary school. These results also call into question BWXT's beryllium emission monitoring.

There is literature that supports that there are no safe exposure limits to beryllium. Safety exposure limits continue to evolve downwards after the U.S. Department of Energy colluded with the beryllium industry to oppose more stringent safety measures. According to the CDC's Agency For Toxic Substances and Disease Registry "People living near a plant that uses beryllium and families of workers have developed CBD."

I believe that my previous recommendation to the CNSC to relocate the Be point sources was prescient. The CNSC should take precautionary approach to public health.

I therefore respectfully recommend the following;

1. **Beryllium point sources on this property should be relocated to minimize public risk**

Section 3 - Beryllium Lymphocyte Proliferation Test (BeLPT)

Recently released information indicates that there were serious issues with the handling of beryllium at the GE/GE-Hitachi/BWXT plant. Ministry of Labour recommendations were ignored by GE staff and the The Report of the Advisory Committee on Retrospective Exposure Profiling of the Production Processes at the GENERAL ELECTRIC PRODUCTION FACILITY in Peterborough cites "GE's callous disregard for the health of workers and its poor safety culture."

It seems very likely that there was an extended period of time in which beryllium was emitted with no or few controls at the Monaghan site.The placement of beryllium

point sources on this site maximizes public exposure to beryllium. In addition, as pointed out previously, trends seen in IEMP soil testing at this plant show increasing levels of beryllium in soil, particularly those in the junior playground of the elementary school.

With the advent of BeLPT, the CNSC is in a position to determine the degree of beryllium exposure historically to workers, former students of Prince of Wales School, and former residents who lived in the vicinity of this plant. These historical exposures, coupled with rising IEMP beryllium soil levels indicate atmospheric beryllium pollution may also be affecting current students and current residents.

I therefore respectfully recommend the following;

1. **The CNSC should work with MOE staff, Health Unit staff and community members to determine when effective beryllium pollution controls were installed at this plant.**
2. **The CNSC should begin a BeLPT survey of former workers, residents and Prince of Wales students to determine if exposures in the community were extensive. An action plan should be created based upon these results.**
3. **Current students and residents in the vicinity of this plant should be offered BeLPT testing.**
4. **No license amendments should be granted until it is clear that there is effective stack monitoring and pollution controls for beryllium at the Monaghan site.**
5. **The license renewal period should be restricted until there is a full understanding of the historical and current issues with beryllium emissions at this plant.**

Section 4 - Liability Insurance

The CNSC does not currently require BWXT to have liability insurance. As per CNSC communication to CELA “The provisions of the Nuclear Liability and Compensation Act (NLCA) are not applicable to BWXT’s Toronto and Peterborough facilities. This is because BWXT only processes natural or depleted uranium which are excluded from the definition of nuclear material under the NLCA. As a result, BWXT’s facilities do not meet the criteria to be designated as nuclear installations and are not covered under the NLCA.”

In addition, the municipality of Peterborough requires no insurance from BWXT, despite requiring 5 million dollars liability insurance to put a float in the Santa Claus Parade.

Repeat inquiries to BWXT about the amount of liability insurance they carry yielded the following answer ” BWXT NEC maintains a diversified portfolio of insurance coverages appropriate for the size and scope of our operations.” BWXT will not divulge how much insurance it carries. Yet, ten years ago, I was astonished to learn from the president of GE-Hitachi that the amount of liability insurance maintained on the Monaghan property was less than that on my household insurance! I suggested to the president of the company at that time, Peter Mason, that he bring his bundles over to my house for manufacturing.

The CNSC’s policies with respect to liability insurance need modernization. Locating Class I facilities in urban, residential areas increases liability exposure - it does not decrease liability. In both Toronto and Peterborugh there have been significant increases in property values and the proximity of the BWXT site in Peterborough to an elementary school demands substantial insurance.

Local residents might be surprised to learn that household insurance often has a nuclear exclusion. Yet, some insurers state the following “Things like natural or nuclear disasters would be covered by government disaster relief or by company liability coverage for a nuclear accident so it is unnecessary for homeowners to have insurance for them.” Residents living near this plant and the parents of children attending Prince of Wales elementary should be assured that there is liability coverage from any activity sanctioned by a CNSC license. BWXT is adamant that their activities carry little risk. Insurance should therefore cost next to nothing.

BWXT’s unique position as a lessor of a class I nuclear facility means that property cannot be held in the event of a catastrophe. The CNSC must adjust its policies to acknowledge BWXT’s unusual situation as a lessor and licensee.

I therefore respectfully recommend the following;

1. **BWXT should be required to have insurance that is aligned with the increased risk exposure associated with being a lessor of property operating a nuclear facility in an urban area. The CNSC should delegate citizen representatives and insurance professionals to establish the risks associated with BWXT’s operations. A liability evaluation should establish an appropriate liability value which BWXT should meet. This figure should be made publicly available to assure residents they have ample coverage, which is currently not the case.**

Section 5 - Putting Risk Where Risk Does Not Belong

Staff at the CNSC have admitted that it would be unlikely that BWXT would be granted a new permit to operate in an urban area such as that found in Toronto or Peterborough. Yet, CNSC staff have recommended that pelleting be allowed to begin in an urban area in a license amendment.

Was the CNSC staff recommendation in Peterborough for safety reasons - ***"in order to prevent unreasonable risk"*** as CNSC regulatory fundamentals require? Does pelleting uranium dioxide powder in a nuclear facility only 25 metres from the junior playground of an elementary school "prevent unreasonable risk"?

The Toronto property currently has a hydrogen tank with a capacity of 29 million litres of hydrogen gas at 21°C and 1 atmosphere pressure. The explosive potential of such a large quantity of hydrogen should surely be defined as a risk.

"If hydrogen gas mixtures enter confined regions, ignition is very likely and can result in flame acceleration and generation of high pressures capable of exploding buildings and throwing shrapnel." Hydrogen gas enters confined spaces in Toronto! Hydrogen is used in ovens during sintering.

Evidence of hydrogen gas explosions is not difficult to find. An accident at an Ohio power plant is indicative of the risk involved with large quantities of hydrogen. *"The explosion fatally injured the vendor's driver and also injured 10 others who had been working nearby. The explosion caused significant damage to the unit's service building, turbine room, and steam generator building."*

Evidence of damage caused by a hydrogen gas explosion at an Ohio power plant in 2007.

A previously undisclosed hydrogen jet fire in 2017 occurred in an enclosed oven that was supposed to be anoxic - see CMD20-H2 (not disclosed on the BWXT web site). A fire should not have been possible under these circumstances. Where there is fire, an explosion is also possible. Examining the CNSC staff report, there is no mention of the explosive potential of hydrogen, or the concerns of hydrogen burning in proximity to uranium dioxide powder, a flammable material.

Uranium dioxide powder has burned in regulated nuclear facilities before. But, BWXT staff were ignorant of this in verbal communication during a tour of the Toronto plant. In fact they said it was NOT flammable. It is concerning that neither CNSC or BWXT staff acknowledge the risks associated with hydrogen and uranium dioxide powder - particularly when they seek to begin pelleting operations only 25 metres from a public school.

Other nuclear regulators around the world seem to recognize what the CNSC does not - putting uranium dioxide pelleting operations in residential areas constitutes “unreasonable risk”.

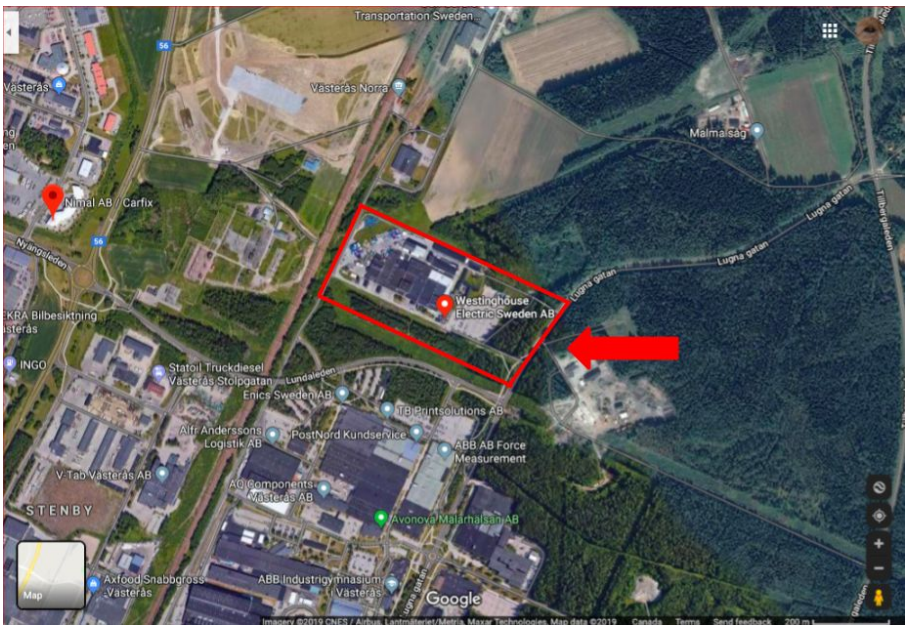
The following following three images are in approximately the same scale and show the only three pelleting facilities in the United States.

Framatome, Richmond, Wa A huge site in rural Washington state	

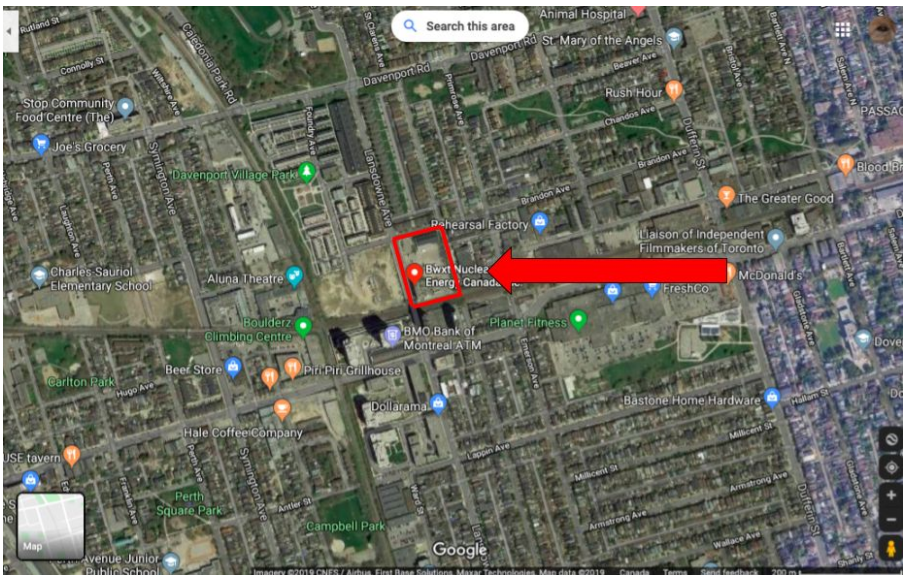
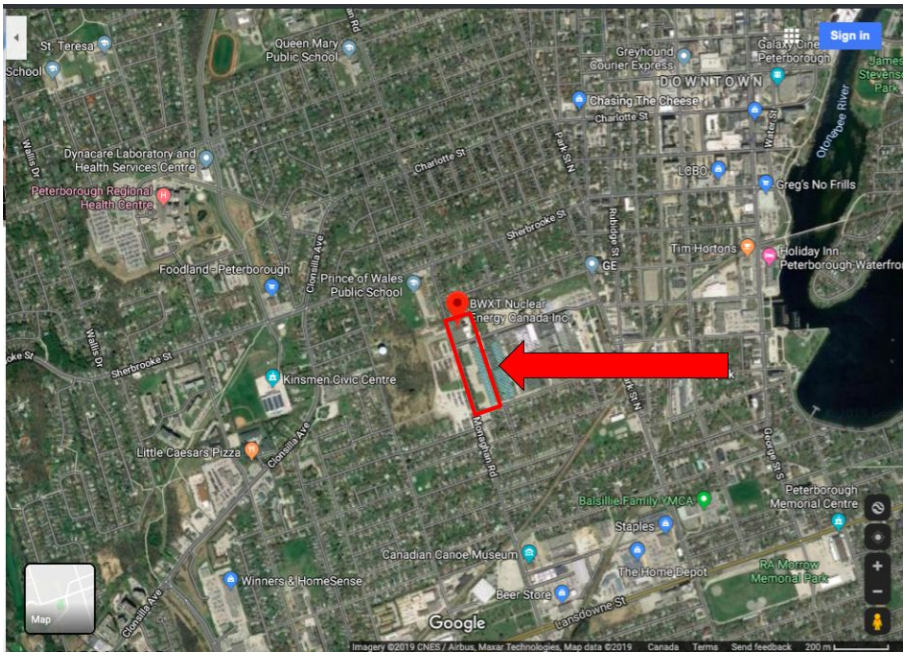
Westinghouse, Columbia, SC No residences anywhere to be seen here GE Hitachi, Wilmington, NC 1500 acres dedicated to this facility. No residences or schools are anywhere near this facility.	 

The next 4 facilities are in Europe.

Framatome, Romans, France There are no schools in the immediate vicinity of this plant located in what appears to be an industrial zoning. This also seems to be a historical license.	
Westinghouse, Springfields, UK The nearest school appears to be at least 200m from any buildings associated with fuel production on this site.	

Westinghouse, Vasteras Sweden This facility is located in an Industrial Park	
No schools, no residences are near ENUSA Juzabado, Spain	

Contrast the above facilities with those regulated by the CNSC in Toronto and Peterborough. We can easily see 2 facilities that don't conform to international norms;

BWXT Toronto, On	
BWXT Peterborough, On	

I have searched for a nuclear regulator that has purposely placed people in harm's way by licensing modern pelleting facilities in urban areas. I cannot find a precedent for placing a uranium dioxide pelleting facility so close to an elementary school and so close to residential accommodation in a new facility.

How is it that the Canadian regulator perceives risk so differently from international regulators? International standards are unambiguous with respect to siting nuclear facilities. Under requirement 26 of the IAEA's Safety Guidelines for Siting Nuclear Facilities, you will find the following;

“Requirement 26: Population distribution and public exposure The existing and projected population distribution within the region over the lifetime of the nuclear installation shall be determined and the potential impact of radioactive releases on the public, in both operational states and accident conditions, shall be evaluated and periodically updated.”

“6.8. Information on the existing and projected population distribution in the region, including resident populations and (to the extent possible) transient populations, shall be collected and kept up to date over the lifetime of the nuclear installation. **Special attention shall be paid to vulnerable populations and residential institutions (e.g. schools, hospitals, nursing homes and prisons) when evaluating the potential impact of radioactive releases and considering the feasibility of implementing protective actions.**”

Yet, CNSC staff have chosen to recommend a site that is only 25m from the junior playground of an elementary school, and a short distance to a retirement home.

The CNSC should abide by international standards. It should protect the vulnerable. Siting a pelleting plant in a residential area, only 25m from a school would be in opposition to international standards. It would be “unreasonable risk”.

I therefore respectfully recommend the following;

1. **Permission to begin pelleting 25 metres from a public school in a residential area should be denied.**