



Oral Presentation

Exposé oral

**Written submission from
Deirdre McGahern**

**Mémoire de
Deirdre McGahern**

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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laissée en blanc*

January 27, 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: BWXT Nuclear Energy Canada's application to license FFOL-3620.1/2020

Dear Commission:

I am writing this intervention in writing and would also like to make an oral presentation at the Peterborough hearing with 18 slides attached in a folder to this email.

My house is less than 500 meters from the BWXT facility in Peterborough on Paterson St. I bought it in 2011 after my friends purchased the house behind on Sherbrooke St. I wanted to live next to them so I put notes in the neighbours' mailboxes asking them to call me if they decided to sell. A few weeks later Cliff called. He had a small wood framed house on a huge lot with a wood stove and was ready to downsize. Perfect. It needed a ton of work but it had a great feel. Perfect. Two months later I took possession and my friends and I started ripping it up. We ripped out a mishmash of old, dirty materials full of second hand smoke—carpet, wallpaper, fake wood panelling, linoleum. We uncovered shoddy electrical, roof leaks, rotten beams, mice nests, wasp nests and a perfectly intact snake skin. It felt like my house built in 1915, perhaps by a GE worker, was well on its way back to nature. We worked and worked until spring when it was time to get back to paid work.

I'm a straw bale builder. I own and run a straw bale building company called Strawworks Inc. We build straw bale and other types of super insulated non-toxic walls using natural and local materials. Maybe my next home will be straw bale, and now I'm faced with that question, but in getting started it was easier to buy an old house and renovate it in a completely environmentally sound and non-toxic way. I made the walls thicker and added cellulose insulation to R- 30. I raised the roof in order to add 24" of cellulose insulation to R-80. I waterproofed and insulated my basement. I redid all the plumbing and electrical. Now my old, cold house, is warm, dry, cheap to heat and doesn't need air conditioning to be comfortable in the summer. Materials were chosen that have a low carbon foot print and by doubling code required insulation levels and diligent air sealing, I cut the operating carbon emissions in half. Cliff used to burn 2-3 cords of wood a year and ran an oil furnace and now I solely heat with wood and burn 1-2 cords of wood a year. This house is on the right side of climate change.

Similarly, the simple energy efficiency retrofits I did through LED lighting, energy efficient appliances and energy conservation are an example of a way, of many ways,

that the OPG and Ontarians can secure tomorrow's energy without spending billions to rebuild old nuclear reactors or build new small scale ones.

I also addressed indoor air quality. The indoor air quality of most new houses or newly renovated houses is often more polluted than outdoor air because of the toxins we put in them. For example, drywall mud, the wet stuff in a pail, contains mildewcides, fungicides so that it doesn't spoil on the shelf. It took more time, research, more money to source non-toxic materials, paints, caulking and finishes but avoiding chemicals that may may me sick, or the workers who made them, is worth it.

All of these things, the super levels of insulation, the natural building techniques, non-toxic materials and the energy efficiency, make my house a sample board for my prospective clients. Do you want to see lime plaster on interior walls that turns at the windows and create 12" deep window wells? Do you want to see new pine windows finished with linseed oil varnish on the inside and organic linseed oil paint on the exterior? Would you like to see an earthen floor made of clay, sand, straw and hardening oils in my basement or my living room? Would you like to see old pine floors refinished with a water based non-toxic finish? Would you like to see Tadelakt, a special type of water resistant lime plaster, on my bathroom and shower walls? Would you like to see tongue and groove, ship lap or cove siding? I have examples of each on my interior walls. Would you like to see homemade milk paint made from casein, hydrated lime and water painted plaster, wood and the one piece of original drywall I have left? Would you like to see a retaining wall built between the basement and the crawl space with compressed earth blocks and lime-sand mortar? Would you like to see local pine siding of the exterior treated with a natural wood preservative that will double its life time? I continually get compliments on my house when I am outside. Even a BWXT employee, who is a friend of mine, and walks past on his way to work complimented me one day on the before and after. Another friend said it went from a "sow's ear to a silk purse." My neighbours had to put up with long stretches of tarped roofs and Typar siding but now my house is one of the nicest on the street. And I think they enjoyed watching the step-by-step. "What are you doing now?" they'd say.

I am almost done. I have a handful of trim projects and a custom kitchen and then I will finally be finished after almost 9 years of renos, off and on. But I have a sinking feeling, that right around the time I will be finishing, I will be getting the news that the CNSC has approved BWXT's license application and they will have the flexibility to begin pelleting operations. If that happens, and if pelleting begins, everything I have worked so hard for, will be for not. As the old adage goes, *what's the point of having a home if you don't have a healthy planet to put it on?* What's the point of having a non-toxic home if a company, less than 500 meters away, is allowed to release significant amounts of radioactive and heavy metal emissions and contaminate everything I've done?

In an article in the Arthur newspaper, Zach Ruitter compared the uranium emissions between BWXT Toronto facility, where they make pellets, to the emissions from BWXT's Peterborough facility, where they assemble the pellets into fuel bundles "According to

their self-reported estimates in the 2018 Annual Compliance Report, the company has dosed the Toronto public, claiming to have released 46.2 grams of uranium into the air, and 3.62 kilograms of uranium in the water over the past five years. This is compared to less than one gram into the air and sewer in Peterborough over the same time period.” That is a significant increase of a radioactive heavy metal emissions, and to that I say **no thank you**. In considering the air emissions alone, according to physicists and President of the Canadian Coalition for Nuclear Responsibility, Dr. Gordon Edwards, 46.2 grams of uranium powder contains 35 quadrillion particles at 0.3 microns in diameter and all it takes is inhaling one particle to potentially cause serious long term illness. If pelleting begins, the uranium emissions will be significantly higher than when I purchased my house and as a stakeholder that has made significant investments in my property, I say **no thank you**. Unlike BWXT, I own my property. I run a successful construction business out of my home that employs three people full time two of whom live in this neighbourhood. I have made significant financial investments here and even more in time and energy. I am not an American company renting a facility here for who knows how long.

If pelleting begins, my street and the other streets immediately surrounding the old GE-grounds and the BWXT facility, will take more than our fair share of the stigma of industrial contamination. If stigma was spread as evenly, and as far as the wind blew the uranium emissions coming from their stack, it would be fair but we all know it doesn't work like that. My neighbourhood will be scapegoated as being “right beside” as if that mattered in this case. The real day-to-day danger is from ingesting, inhaling or absorbing an alpha emitting particle of uranium released in the air more than from the relatively weak gamma radiation emitted from the stockpile of material itself. Therefore proximity shouldn't matter all that much but it does when it comes to peoples' perceptions. I can already see the look on people's faces when we are talking about pelleting and I say I live on Paterson St. It's a look of pity and worry. I felt it when a friend who gardened in my backyard last summer, told me she didn't want to garden here anymore because of what was happening at BWXT. The license hasn't even been approved and the stigma already exists. I have worked so hard to create a home that gives me the feelings of comfort and safety and now I'm faced with worry and pity and that in turn makes me feel bad about my home. That is stigma at play and it's not fair. This week, I walked around the BWXT pelleting facility in Toronto and saw the radioactive signs taped to the doors of one of the buildings. I don't want to see radioactive signs in my neighbourhood. I don't want to explain when my family from out of town comes to visit what that's all about. The scientific consensus is that beyond natural radiation levels, there is no safe level of radiation. Those signs mean danger because there is danger and that's not what I signed-up for when I bought this house. This neighbourhood has suffered enough from decades of industrial pollution of the worst kind - PCBs, asbestos, uranium, beryllium, hydrofluorocarbons. It deserves an environmental assessment, a clean-up, a moratorium on pollution and healthy long term investments. Proposing pelleting is like adding salt to wounds.

Furthermore, in recent memory, the CNSC failed the people of Peterborough. Eventually the CNSC shut down Shield Source Inc., a company that manufactured

radioactive 'EXIT' signs using tritium at their plant at the Peterborough airport but not before it released radioactivity far beyond its regulatory limits for years. According to the CELA, the Canadian Environmental Law Association, Shield Source "recalculated its tritium emissions for the years 2010 and 2011 at five to nine times the levels previously reported" and "The new levels are more than twice release limits allowed." The Peterborough County Health Unit's Medical Officer of Health Dr. Rosana Pellizzari called the tritium emissions from Shield Source a "grave health concern" and that "We have a small industry in Peterborough emitting more than a major nuclear industry." According to Jeff Bracket, a local resident, on February 1st, 2010 Shield Source "totally lost control of their process for five minutes and released 30% of their annual release limit in a five minute accident." The CNSC license to Shield Source failed to protect the people of Peterborough and the environment from unnecessary releases of radioactive material. I do not trust that another accident will not happen again under another CNSC license. History tells us that accidents happen and when they happen with radioactive materials the consequences are far too great to justify the means.

I first learned of BWXTs licence renewal when I received BWXTs community newsletter in my mail box in the fall of 2018. I read it and promised myself that I would go back to further inquire but I didn't. It took an email, a forward from a friend, forwarded by another friend to get my attention. The more I learned, the more I became concerned. On January 6th, I composed a letter of my top concerns of BWXTs license application and mailed it to MPP Maryam Monsef, Mayor Diane Therrien, MPP Dave Smith, Councillor Lesley Parnell, Councillor Keith Riel, Councillor Henry Clarke, Councillor Don Vassiliadis, Councillor Kim Zippel, Councillor Stephen Wright, Councillor Gary Baldwin, Councillor Andrew Beamer and the Medical Officer of Health Dr. Rosana Salvaterra. To date, nobody has gotten back to me with answers to my questions. Today I am addressing these questions to the CNSC and asking for specific answers.

1. Fine Uranium Powder. Uranium fuel pellets are made from a very fine radioactive powder (finer than flour) that can easily escape into the air, and is easily inhaled or ingested. **Aside from the uranium that will be permitted to be released as air emissions and liquid effluent, what will be done to contain the air in the facility so that fugitive unaccounted for emissions don't further contaminate the environment?**

2. Radiological Hazard and Chemical Hazard. BWXT-Peterborough implies that uranium is safe by calling it weakly radioactive when compared to x-rays but that is outside of the body. If inhaled into the lungs, it can emit alpha and beta particles that irradiate our cells from within for years and years. According to the World Health Organization, once inside the body, alpha particle emitters such as uranium are type 1 carcinogens. Uranium is also a heavy metal with health implications similar to lead. **If pelleting begins, by what factor will the risk of getting cancer increase in Peterborough and by what factor will our exposure to heavy metals increase? Given that the town of Peterborough already has increased rates of some cancers**

compared to other parts of the province, is it acceptable to further add to our risk when we aren't even studying why some cancer rates are higher?

3. Tiny not negligible. According to BWXT's 2018 Annual Compliance Report, their pelleting facility in Toronto released 46.2 grams of uranium into the air in the last five years. That's roughly 1/3 cup and doesn't sound like much but according to physicists and President of the Canadian Coalition for Nuclear Responsibility, Dr. Gordon Edwards, 46.2 grams of uranium powder contains 35 quadrillion particles at 0.3 microns in diameter and all it takes is inhaling one particle to potentially cause serious long term illness. **Do the people of Peterborough understand that similar to the cancer causing potential of one single asbestos fibre, breathing in just one particle of uranium is extremely dangerous? My house is less 500 meters from the facility. If pelleting begins, can you guarantee that the air I will be breathing is as safe as it is today?**

4. No Environmental Assessment. A federal environmental assessment is not required for approval of this new industrial process in Peterborough even though radioactive emissions will increase significantly. In comparing the emissions of BWXT's Toronto facility, where they make pellets, to the emissions from BWXT's Peterborough facility, where they assemble the pellets into fuel bundles, Zach Ruitter wrote in an article in The Arthur last month, "According to their self-reported estimates in the 2018 Annual Compliance Report, the company has dosed the Toronto public, claiming to have released 46.2 grams of uranium into the air, and 3.62 kilograms of uranium in the water over the past five years. This is compared with less than one gram into the air and sewer in Peterborough over the same time period." **By what measure, does the CNSC use to approve or deny a license for a new industrial hazardous process if it is not an independent scientific review of the risks to the surrounding air, land, water, wildlife and people?**

5. Dirty Supply Chain. According to Civil and Environmental Engineering Professor Mark Z. Jacobson, "Uranium mining causes lung cancer in large numbers of miners because uranium mines contain natural radon gas, some of whose decay products are carcinogenic" and "consumed fuel rods from nuclear plants are radioactive waste... This has given rise to hundreds of radioactive waste sites in many countries that must be maintained and funded for at least 200,000 years. **If pelleting begins will the city of Peterborough, the federal government or BWXT accept some of the responsibility of the consequences of pelleting before and after Peterborough? Will some of the profits or the tax revenue go towards compensating the uranium miners in Northern Saskatchewan/ Dene Territory who get lung cancer? Will the highly radioactive consumed fuel rods, return to Peterborough and be safely stored for the next 200 000 years?**

6. Accidents Happen. In 2017 BWXT-Peterborough found they had been using the wrong masks and had accidentally exposed their employees to highly toxic beryllium. During the 2004 flood in Peterborough, there was 2 inches of water on the floor of the GE facility that ultimately flowed into Little Lake. In 2018 GE claimed responsibility for an oil spill into Little Lake that contained hydrocarbons. **If pelleting begins, 1500 metric tons of uranium powder and a 9000 gallon tank of liquid hydrogen will be on-site. What is the worst case possible accident? Given that I live less than 500 meters from the facility, I really need to know.**

7. Women & Children. Women and children are known to be much more vulnerable to both radiological damage and chemical damage than an adult male and the effects are cumulative. Prince of Wales Public School is across the street, Queen Mary Public School is up the street and Westmount Elementary School is 2.5 km away from the facility on Monaghan Rd. That's a lot of kids who will be exposed to new health risks day in and day out. **Are the safe dose limits set according to an adult male, an adult female, or a child? Does the proximity of the facility to public schools in a densely populated neighbour fit with the CNSCs guiding principle ALARA— As Low As Reasonably Achievable?**

8. Property Values. The property value of my house on Paterson St. stands to go down because of the stigma of being so close to a uranium processing facility and the associated risk of radioactive and heavy metal contamination. **If pelleting begins and my property value goes down, from the stigma of proximity and danger of proximity, will I receive compensation from the federal government?**

In summary, as a stakeholder, as a local resident that lives less than 500 meters from the BWXT facility, I am opposed to BWXT license renewal including the flexibility to begin pelleting operations in Peterborough. I feel so strongly that I do not want this in my neighbourhood, that I do not want it anywhere. There are people everywhere and there is really no safe uninhabited place to mine, process, manufacturing uranium fuel pellets and safely dispose of the waste. Over the last year, I've come to learn that uranium is best left in the ground. Our bodies did not evolve with more than natural background levels of radiation and we simply cannot handle it. It's time we see nuclear energy for what it is - a 70 year long experiment whose day is done. Of all the options on the table to supply Ontario's power, nuclear is the most expensive, has the highest death toll and is not the best option to address climate change. Given the age of the Pickering and Darlington reactors, and Hydro Quebec's offer of a 20 year contract for the cheapest and most plentiful electricity in North America, there has never been a better time to make the switch.

Please see photographs below.

Yours truly,
Deirdre McGahern



2020 - Sign on BWXT building in Toronto (time for some new duct tape)



2011 - Cliff and I



2011 - Got the keys party



2011 - Gardening with friends neighbours behind.



2011 - Demolition



2011 - Wasp nest in the exterior wall



2011 - Chatting over the fence. Now we have a gate.



2013 - Framed a new roof over existing as a way of adding 24" of cellulose insulation (R-80)



2015 - Framing exterior walls and hanging them off existing framing to add insulation.



2016 - Insulating with dense pack cellulose to R-30



2016 - Interior lime plaster & pine window



2017 - Exterior pine siding & pine windows painted with linseed oil paint



2017 - Installing pine siding in the winter



2018 - Work weekend with Mom



2017 - Earthen floor with linseed oil varnish



2018 - Before & after sanding original pine floors



2018 - Pine siding on interior walls & lime plaster on exterior walls.



2017 - Chatting with neighbour while caulking windows before he heads to Prince of Wales Public School up the street.