



Nuclear Energy Canada Inc.

COMMUNITY NEWSLETTER

Proudly supporting our community and supplying the fuel that powers 1/4 of the province!

SUMMER 2021

1025 Lansdowne Avenue, Toronto ON

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What We Do

In Toronto, we manufacture ceramic pellets from natural uranium dioxide powder. After pressing, baking, grinding and inspecting the pellets, we send them to our Peterborough facility where they are placed in CANDU® fuel bundles. The fuel bundles are then sent to Ontario Power Generation’s Darlington and Pickering Nuclear Generating Stations. Both our Peterborough and Toronto facilities are licenced by Canada’s nuclear regulator, the Canadian Nuclear Safety Commission (CNSC).

Approximately 50 people work for BWXT in Toronto in high-value manufacturing positions, engineering, and operations support. This team produces the fuel to power 1 in 4 homes and businesses in Ontario with greenhouse gas emissions-free, affordable electricity!

Protecting Our Community

The CNSC regulates the nuclear energy industry to limit radiation employees and members of the public receive. Using studies performed by the International Commission on Radiological Protection on acceptable levels of radiation exposure, the CNSC has set limits of:

- 50 mSv per year, or 100 mSv per five-year span for workers.
- 1 mSv per year for members of the public.



At BWXT Nuclear Energy Canada (BWXT NEC), we have a comprehensive radiation protection program which is guided by the principles of ALARA (as low as reasonably achievable). We use the best available technology to restrict uranium emissions and ensure emissions from our facilities are as low as possible. The small amount of uranium emissions that do occur does not pose a risk to members of the public.

Did You Know:



Each year, the public in Canada is exposed to **1.8 mSv** of natural background radiation



The 2020 dose to the public from BWXT Toronto was **0.0057 mSv**



The average annual dose from indoor radon in Canada is **1.15 mSv**



The dose from a dental x-ray is **0.005 mSv**



The dose from living in a brick or concrete building is **0.07 mSv**

Uranium & Radiation

Uranium is a naturally occurring, weakly radioactive element which is present at low levels in the environment and occurs naturally in soil and rocks, the water we drink and air we breathe. Because uranium is a naturally-occurring, low-level radioactive material that exists virtually everywhere, it contributes to what is called “natural background radiation.”

Radiation is energy in the form of waves or particles, and it doesn’t just come from nuclear energy. Radiation is all around us and we’re exposed to both natural and man-made sources of radiation daily. There are two types of radiation:

- Ionizing - from natural & man-made sources such as x-ray machines and nuclear power plants
- Non-ionizing - from microwaves, radio waves and television signals



2020 Annual Compliance Report Available

Each year, we submit an Annual Compliance Report (ACR) to Canada's nuclear regulator, the CNSC. The ACR demonstrates that BWXT NEC has successfully met the requirements of the Nuclear Safety and Control Act and its Class IB Nuclear Fuel Facility Licence. The ACR, which is reviewed by CNSC Staff, provides the CNSC with information related to BWXT NEC's performance in the CNSC's 14 Safety and Control Areas. The 2020 ACR is available to the public on our website at nec.bwxt.com/safety. For any questions about the ACR, please contact us by email at questions@bwxt.com or by phone at 1.855.696.9588.

At BWXT NEC's facility in Toronto, air and water emissions are routinely measured for the presence of uranium. Our facility has exceptionally low emissions. An overview of uranium emissions are included below:

2020 Air Results

We perform continuous in-stack monitoring drawing a sample of air across a filter capable of trapping uranium dust. The samples are analyzed daily and verified externally by an independent lab. Boundary samples are drawn at five positions around the Toronto facility perimeter using high-volume air samplers. The filters run 24/7 and are collected from the monitors every week and sent to a lab for analysis. New filters are then inserted into the air samplers so the air along the boundary is being tested continually throughout the year.

| Toronto Air (Boundary) | 2019 | 2020 |
|--|-------|-------|
| Number of boundary samples taken | 260 | 265 |
| Number of samples > action level (0.08 µg/m ³) | 0 | 0 |
| Average concentration (µg/m ³) | 0.000 | 0.000 |
| Highest value recorded (µg/m ³) | 0.001 | 0.003 |

2020 Water Results

Water is used in the pellet production process and to clean protective clothing, floors and in other janitorial functions.

The water is first held in storage tanks in the facility, treated to remove uranium dioxide, tested and only released in batches once the test results confirm it meets release requirements. In all of 2020, BWXT NEC emitted a mere 0.36 kilograms of uranium to the sewers – which is less than 500 mL (for reference, a standard bottle of water contains 500 mL). The 2020 release limit for uranium water emissions is 9,000 kg/year.

| Toronto Water | 2019 | 2020 |
|--|------|------|
| Number of samples exceeding 6 ppm batch release action level | 0 | 0 |
| Average uranium concentration at point of release (ppm) | 0.46 | 0.24 |
| Highest uranium concentration at point of release (ppm) | 2.58 | 2.79 |
| Total discharge to sewer (kg uranium) | 0.57 | 0.36 |

2020 Soil Results

In Ontario, background levels of uranium in soil are generally below 2.5 µg/g ((parts per million (ppm)). The Canadian Council of Ministers of the Environment (CCME) established soil quality guidelines to protect human health and the natural environment.

Soil sampling for uranium is conducted annually at the Toronto facility by a third-party consultant. Samples of surface soil are retrieved from 49 locations in accordance with a documented plan. The sampling methodology used is based on Ministry of the Environment Conservation & Parks guidelines.

| Toronto Soil | Location Description | | |
|----------------------------------|----------------------|--|--|
| | On BWXT NEC Property | On industrial / commercial lands (i.e. south rail lands) | All other locations (i.e. residential) |
| Relevant CCME Guideline (µg U/g) | 300 | 33 | 23 |
| Number of samples taken | 1 | 34 | 14 |
| Average concentration (µg U/g) | 1.3 | 2.9 | 1.0 |
| Maximum concentration (µg U/g) | 1.3 | 17.6 | 1.0 |

TALK TO US

We Want to Hear From You!

Phone: 855-696-9588

Email: questions@bwxt.com

Online: nec.bwxt.com

BWXT Nuclear Energy Canada Inc.

1025 Lansdowne Avenue

Toronto, ON M6H 4H2

BWXT Nuclear Energy Canada Inc.

1160 Monaghan Road

Peterborough, ON K9J 0A8

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