



WHAT WE MAKE

CANDU® FUEL BUNDLES

At BWXT NEC in Peterborough, we assemble fuel bundles for use in CANDU® reactors.

The natural uranium pellets are produced at our Toronto facility and the zirconium tubes are manufactured at our Arnprior facility. These components are shipped to our Peterborough operation where they are assembled into fuel bundles that meet the stringent requirements of reactor operating conditions.

BWXT NEC has supplied over a million fuel bundles for CANDU reactors.

FUEL HANDLING & ENGINEERED SOLUTIONS

BWXT NEC's fuel handling and reactor inspection and maintenance tooling and delivery systems, are also designed and manufactured in Peterborough. These highly-engineered systems and tools support refurbishment requirements for reactor defuelling, fuel channel inspection and maintenance, and other reactor operating needs.



WHO WE ARE

BWXT Nuclear Energy Canada Inc. (BWXT NEC), a subsidiary of BWXT Canada Ltd., has more than 60 years of extensive experience and innovation in the supply of nuclear fuel and fuel channel components, services, equipment and parts for the CANDU® nuclear power industry. This includes designing and supplying highly reliable equipment to fuel, inspect and refurbish reactors.

BWXT NEC employs approximately 500 skilled employees at three locations in Ontario: Peterborough, Toronto and Arnprior.

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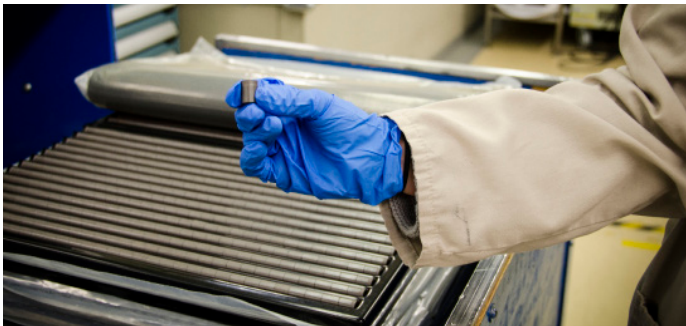


PETERBOROUGH

Public Information Brochure

2024





NATURAL URANIUM

Uranium is a naturally occurring, weakly radioactive element that is present at low levels in the environment. This element is found naturally in soil and rocks, in the water we drink and even in the air we breathe. Because uranium is a naturally occurring, low-level radioactive material that is found across virtually all parts of our environment, it contributes to what is called “natural background radiation.”

HEALTH & SAFETY

BWXT NEC’s number one priority is the health and safety of workers, members of the public and the environment. BWXT NEC operates its facilities at the highest safety standards and in accordance with all applicable laws and regulations.

BWXT NEC makes publicly available its Annual Compliance Report (ACR) which is submitted to Canada’s nuclear regulator, the Canadian Nuclear Safety Commission (CNSC). Annual Compliance Reports can be found at nec.bwxt.com.

ENVIRONMENTAL MONITORING

BWXT NEC is committed to minimizing the effects of its operations on the environment and complies with all relevant environmental regulatory laws.

The BWXT NEC Peterborough facility has very low emissions that are well below regulatory limits.

To learn more about emissions from BWXT NEC’s Peterborough facility, visit nec.bwxt.com to see our full Annual Compliance Report.

URANIUM AIR MONITORING

Continuous in-stack sampling is conducted for the single process uranium air emission point. A sample of air is drawn across a filter capable of trapping uranium dust. The samples are analyzed by an independent laboratory. Due to the nature of the process and our stack sample results to-date, perimeter monitoring is not required.

	2022	2023
Number of samples taken	50	51
Number of samples exceeding action level (1.0 µg/m³)	0	0
Highest value recorded (µg/m³)	0.005	0.007
Average concentration (µg/m³)	0.001	0.001

URANIUM WATER MONITORING

Wastewater is generated from routine cleaning activities in the fuel bundle assembly area. All potentially uranium-contaminated wastewater is held in a drum, filtered and samples are sent to an external laboratory for analysis. This wastewater is only released to the sanitary sewer once the test results confirm it meets release requirements.

	2022	2023
Number of samples exceeding action level (3 parts per million annual average)	0	0
Average uranium concentration at the point of release (parts per million)	0.30	0.07
Maximum uranium concentration at the point of release (parts per million)	0.78	0.20
Volume of liquid discharged (L)	820	615

URANIUM SOIL SAMPLING

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 established soil quality guidelines to protect human health and the natural environment. Soil sampling for uranium is conducted annually by a third-party consultant. Samples of surface soil are retrieved from locations surrounding the facility. The sampling methodology used is based on Ministry of the Environment Conservation & Parks (MECP) guidelines.

	2023
MECP Guideline (µg U/g)	2.5
Minimum detectable limit (µg U/g)	1.0
Number of samples taken (parts per million)	13
Average concentration (µg U/g)	<1.0
Maximum concentration (µg U/g)	<1.0

RADIATION

Radiation is energy in the form of waves or particles. Radiation doesn’t just come from nuclear energy. It’s all around us – and we’re exposed to both natural and man-made sources of radiation daily. There are two types of radiation, ionizing and non-ionizing. Some examples of non-ionizing radiation include microwaves, radio waves and television signals. Ionizing radiation comes from natural sources and man-made sources such as x-ray machines and nuclear power plants.

RADIATION PROTECTION

The Canadian Nuclear Safety Commission (CNSC) regulates the nuclear energy industry to limit the radiation that our employees and neighbours receive. Using studies performed by the International Commission on Radiological Protection on acceptable levels of radiation exposure, the CNSC has set limits for workers of 50 mSv per year, or 100 mSv per five-year span and 1 mSv per year for members of the public.

BWXT NEC has a comprehensive radiation protection program and is guided by the principles of ALARA (as low as reasonably achievable).

The 2023
estimated annual
public dose was
0.0000 mSv



BERYLLIUM

At BWXT NEC in Peterborough, beryllium is used as part of the fuel bundle manufacturing process. Emissions are monitored for the presence of beryllium.

Since 2020, BWXT NEC has conducted annual soil sampling for the presence of beryllium through an independent laboratory.

All beryllium emissions to air, water and soil are well below regulatory guidelines. Learn more about our beryllium emissions by visiting nec.bwxt.com.