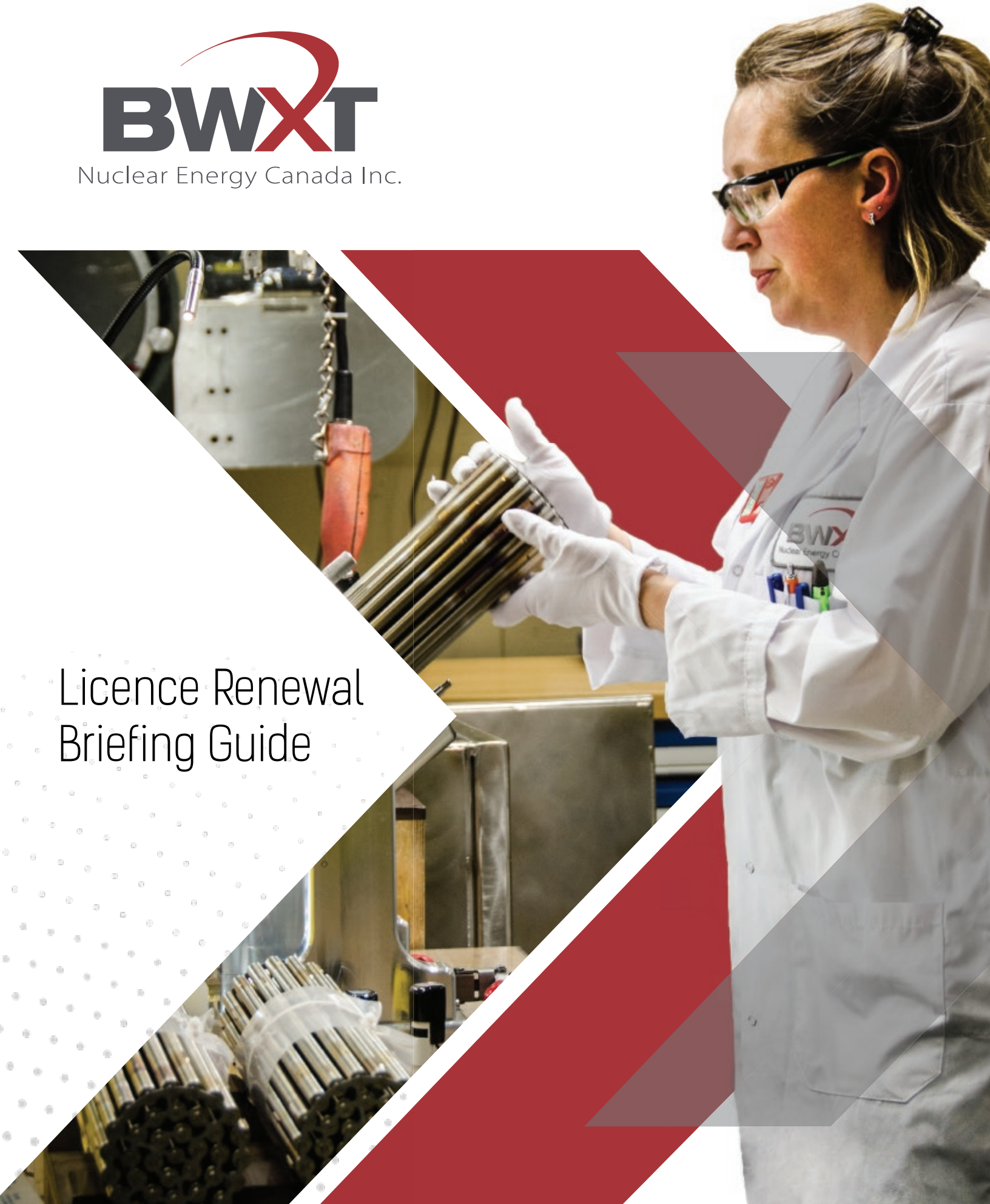
BWXT

Nuclear Energy Canada Inc.



Licence Renewal Briefing Guide

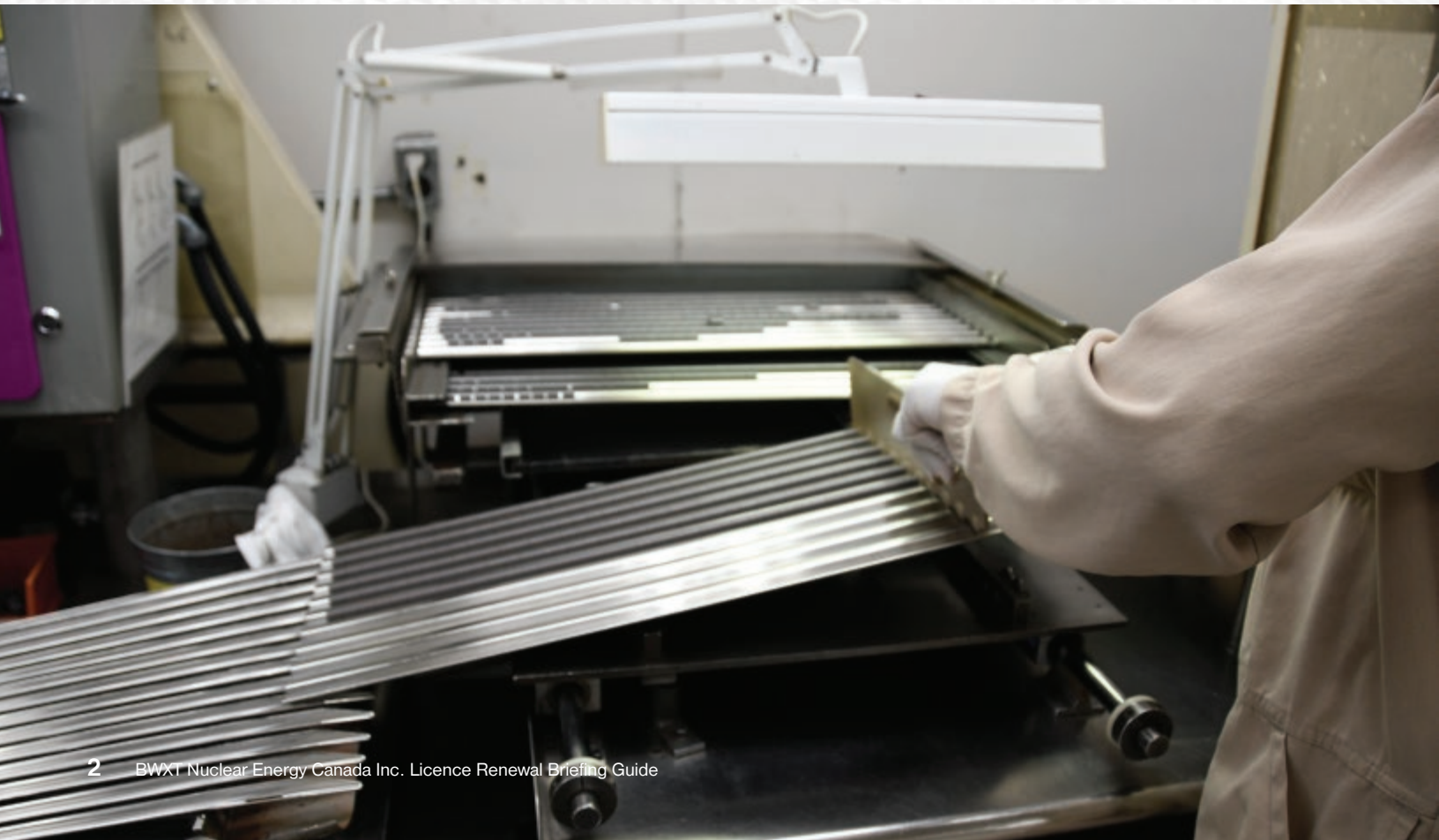
Licence Renewal Briefing Guide

BWXT Nuclear Energy Canada Inc. (BWXT NEC) holds a Class IB Nuclear Fuel Facility Operating Licence issued by the Canadian Nuclear Safety Commission (CNSC). The current licence, issued on January 1, 2011, expires on December 31, 2020.

On November 12, 2018, BWXT NEC submitted an application to the CNSC to renew its Class IB licence for a period of 10 years.

On March 2-3 (in Toronto) and 5-6 (in Peterborough), 2020, the CNSC will hold a public hearing on the application by BWXT NEC to renew, for a period of 10 years, its licence for its Toronto and Peterborough Ontario facilities.

This document has been developed as a resource for members of the public who wish to issue a written submission, or written submission accompanied by an oral presentation, at the CNSC hearing. This briefing guide provides an overview of BWXT NEC's CNSC licensed facilities, which are located in Toronto and Peterborough, Ontario.



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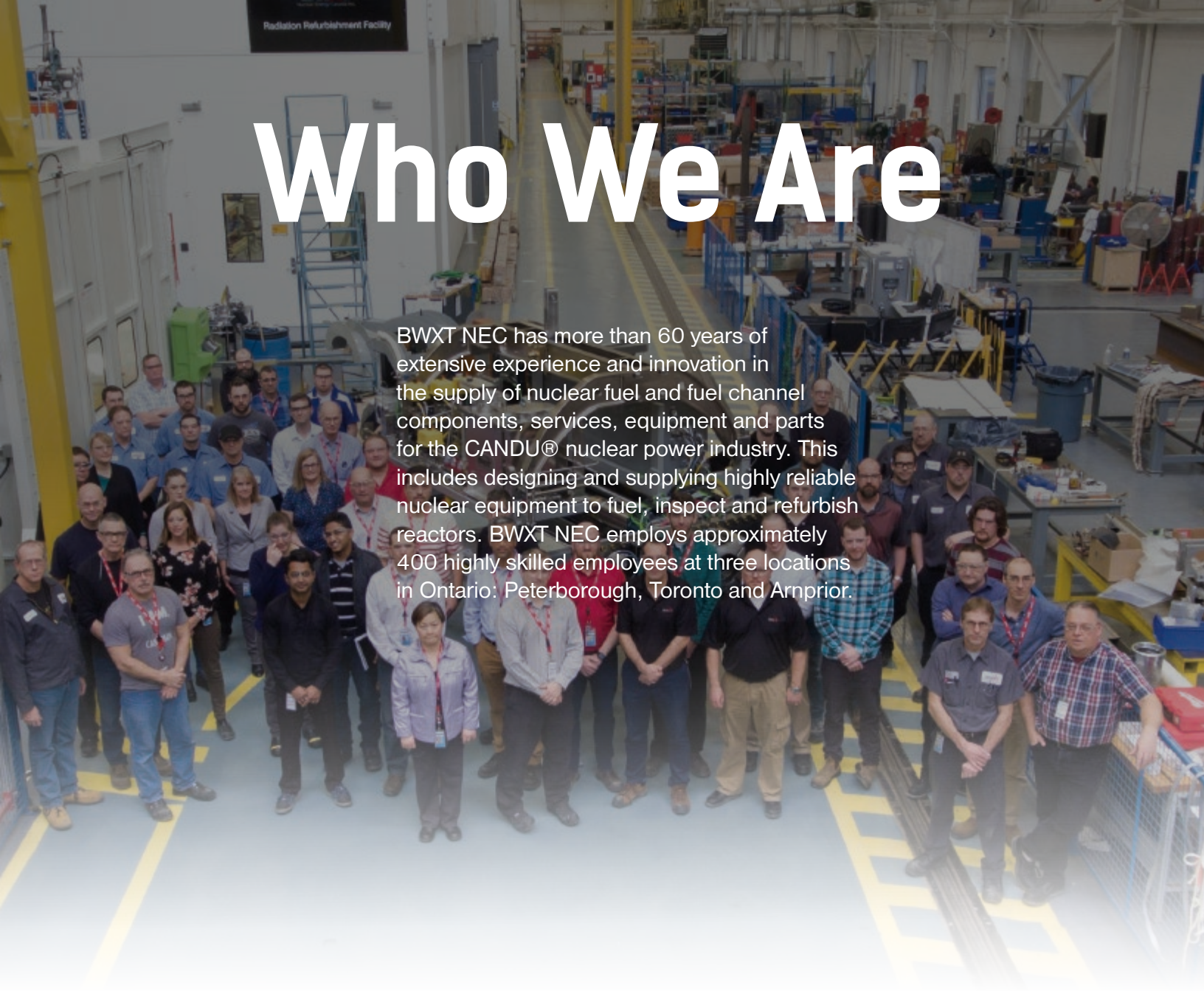


Who We Are

BWXT NEC 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 nuclear equipment to fuel, inspect and refurbish reactors. BWXT NEC employs approximately 400 highly skilled employees at three locations in Ontario: Peterborough, Toronto and Arnprior.

Our Licence

BWXT NEC's Toronto and Peterborough facilities are Class IB nuclear fuel facility operations. Our current licence, issued on January 1, 2011, is valid until December 31, 2020. Under the current licence BWXT NEC is authorized to perform activities at two facilities: our Toronto facility located at 1025 Lansdowne Ave. and our Peterborough facility at 1160 Monaghan Rd.

The Toronto facility produces natural and depleted uranium dioxide pellets, while the Peterborough facility is authorized to produce and test fuel bundles using natural and depleted uranium* dioxide pellets. The Peterborough facility is additionally authorized to receive, repair, modify and return contaminated equipment from off-site nuclear facilities.

*Depleted uranium is almost identical to natural uranium.

End Closure Welding in Peterborough

Toronto

1025 Landsdowne Avenue

Fuel Manufacturing

At our Toronto facility, we make ceramic pellets from natural uranium powder. After pressing, baking, grinding to precision size and inspecting the pellets, we send them to our facility in Peterborough where they are placed into fuel bundles for CANDU® power stations in Ontario.

The pellets produced at our Toronto facility go on to provide approximately 25% of Ontario's electricity.

Less than 10 of these tiny pellets are needed to power the average Canadian home for a year![1]

Our People

Approximately 50 people work for BWXT NEC in Toronto in high-value manufacturing, engineering and operations support positions.

[1] Canadian Nuclear Association Fact Book

A quality control inspector holds a completed uranium pellet in Toronto

Peterborough

1160 Monaghan Road

Fuel Bundle Assembly

At BWXT NEC Peterborough, we assemble fuel bundles for CANDU® reactors. The natural uranium pellets are produced at our Toronto facility and the zirconium alloy tubes are manufactured at our Arnprior facility. These components are shipped to our Peterborough operations, where they are assembled into fuel bundles that meet the stringent requirements of reactor operating conditions.

Fuel Handling & Engineered Solutions

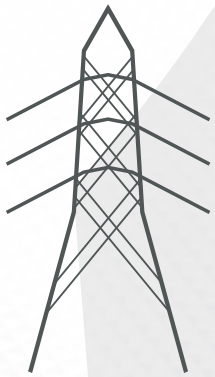
BWXT NEC's fuel handling and reactor inspection and maintenance tooling and delivery systems are also designed and manufactured in Peterborough. These highly engineered systems and tools support reactor fuelling, fuel channel inspection and maintenance, and other reactor operating needs.

Our People

Approximately 300 people work for BWXT NEC in Peterborough in high-tech manufacturing and administrative positions. Approximately 80 of these employees are engineers in disciplines such as software, metallurgy, mechanical, electrical and systems.

Fuel bundle inspection in Peterborough

BWXT NEC by the Numbers



~25%

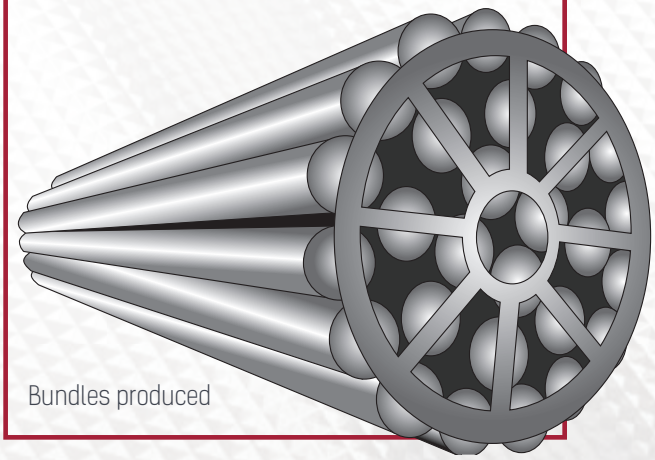
Of Ontario's electricity is generated by BWXT fuel

EMPLOYEES

~400

Across three sites in Ontario

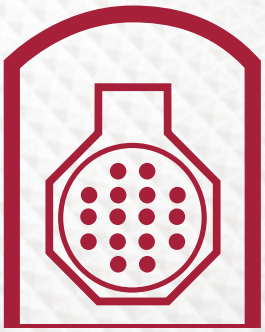
~1.2 Million



Bundles produced

~50,000

BWXT made bundles are in CANDU reactors at any given time.



Our NUMBER ONE PRIORITY is the health and safety of our employees, members of the public and the environment.

A technician works on maintenance tooling in Peterborough

Responsible and Safe Operations

BWXT NEC has a long history of safe operations and our number one priority is the health and safety of our employees, members of the public and the environment.

BWXT NEC has demonstrated strong performance in all 14 Safety and Control Areas (SCAs) regulated by the CNSC throughout the current licence period.

The 14 SCAs are:

- Management System
- Human Performance Management
- Operating Performance
- Safety Analysis
- Physical Design
- Fitness for Service
- Radiation Protection
- Conventional Health & Safety
- Environmental Protection
- Emergency Management & Fire Protection
- Waste Management
- Security
- Safeguards and Non-Proliferation
- Packaging and Transport

Details on BWXT NEC's performance can be found in our Annual Compliance Reports, available at *http://nec.bwxt.com*.

Application to Renew our CNSC Licence

BWXT NEC holds a Class IB Fuel Facility Operating Licence that is issued and regulated by the CNSC. We are in full compliance with its licence and all applicable regulations.

In our application to renew our licence, we are seeking one change with regard to pellet manufacturing operations. We are seeking the flexibility during the proposed next 10-year licence period to produce pellets at both the Peterborough and Toronto facilities.

While at this time there is no plan to change our current state of operations, the additional flexibility sought will give us the ability to adapt as required to changing business needs over the decade-long licence period.

Visit our website: *http://nec.bwxt.com/safety/licensing* to view our Licence Renewal Application and Letter.

Interested in Participating?

Members of the public wishing to participate in a public Commission hearing can do so by following the CNSC's intervenor process. More information about participating in a public Commission hearing is available on the CNSC's website:

http://www.nuclearsafety.gc.ca/eng/the-commission/hearings/participate/index.cfm

CNSC Licence Renewal Process

The CNSC licenses and regulates Canada's nuclear industry.

The Canadian Nuclear Safety Commission regulates the use of nuclear energy and materials to protect health, safety, security and the environment; to implement Canada's international commitments on the peaceful use of nuclear energy; and to disseminate objective scientific, technical and regulatory information to the public[1].

As an existing Class IB Fuel Facility Operating Licence holder, BWXT NEC is subject to stringent regulations and oversight by the CNSC. Nuclear licenses are granted for a set period of time and licensees must apply to the CNSC to request a licence renewal. BWXT NEC's current licence was issued on January 1, 2011 and is valid until December 31, 2020.

CNSC staff review licence renewal applications and conduct a technical assessment against the regulatory requirements, make recommendations to the Commission, and verify compliance with the Nuclear Safety and Control Act, regulations, and licence conditions.

The CNSC considers licence applications for nuclear facilities via a public hearing process, which is set out in the Canadian Nuclear Safety Commission Rules of Procedure, here: *http://laws-lois.justice.gc.ca/eng/regulations/sor-2000-211/page-1.html*.

The one or two-part public hearing for a licence application usually takes place over a 90-day period and takes into account the views, concerns and opinions of interested parties and intervenors.

The public hearings are broadcast live on the CNSC's website. To learn more about public Commission hearings visit: *http://nuclearsafety.gc.ca/eng/the-commission/hearings/index.cfm.*

Following the hearings, the Commission deliberates and makes its decision on the matter. The Record of Decision is made public.

KEY DATES

Public Intervention Submission deadline: January 27, 2020
(contact information and link on the next page)

BWXT NEC Public Hearing:
Dates: March 2 and 3, 2020
Place: Casa Do Alentejo Community Centre, 1130 Dupont Street, Toronto, Ontario

Dates: March 5 and 6, 2020
Place: Regency Ballroom, Holiday Inn Peterborough Waterfront, 150 George Street North, Peterborough Ontario

Time: As set by the agenda, to be published prior to the hearing date.

Check http://nec.bwxt.com for updates.

[1]Canadian Nuclear Safety Commission website

Public Participation

Members of the public, Indigenous groups and stakeholders who have an interest, expertise or information that may be useful to the Commission in reaching its decision are invited to comment on BWXT NEC's application and can do so by following the CNSC's intervenor process. Interventions can be made either via a written submission or a written submission accompanied by an oral presentation at the hearing.

Requests to intervene must be filed with the Commission Secretariat by January 27, 2020, either online at: *http://www.nuclearsafety.gc.ca/eng/the-commission/hearings/participate/index.cfm*, by email at *cnsc.interventions.ccsn@canada.ca* or by fax or mail to the details below.

Canadian Nuclear Safety Commission
280 Slater St., P.O. Box 1046, Station B
Ottawa, ON
Canada K1P 5S9

Phone: 613-995-5894
Toll Free: 1-800-668-5284
Fax: 613-995-5086

Pursuant to the Canadian Nuclear Safety Commission Rules of Procedure, the request must include the following information:

- The date and subject of the hearing.
- A written submission of the comments to be presented to the Commission.
- A statement setting out whether the requester wishes to intervene by way of written submission only or by way of written submission and oral presentation.
- Name, address and telephone number of the requester.

More information on how to participate in a public Commission hearing can be found at:

http://www.nuclearsafety.gc.ca/eng/the-commission/hearings/participate/index.cfm

Natural uranium pellets await further processing in Toronto

Fuel bundles being inspected in our quality control department in Peterborough

Environmental Risk Assessment

Licensees are required by the Canadian Nuclear Safety Commission to have an Environmental Risk Assessment (ERA), which is to be updated on a five-year cycle, or whenever a significant change occurs in the facility or activity. The ERA is to be conducted in accordance with the Canadian Standard Association (CSA) N288.6-12, Environmental risk assessments at Class I nuclear facilities and uranium mines and mills, 2012.

Even though there is currently no plan to change the current state of operations, an ERA was undertaken to determine whether there is a potential for environmental (i.e. ecological and human health) effects from current or possible future emissions or physical stressors associated with producing pellets at BWXT NEC's Peterborough facility.

The purpose of an ERA is to identify possible environmental effects, propose measures to mitigate adverse effects, predict if there will be significant adverse environmental effects after mitigation is applied, minimize or avoid adverse environmental effects before they occur, and incorporate environmental factors into decision making.

During the licence renewal process, the CNSC will review the ERA and, if necessary, request additional information to aid its assessment of the licence renewal application.

BWXT NEC's Peterborough and Toronto facilities have existing ERAs that were completed in 2018. These ERAs remain in effect and will continue to be the governing ERAs so long as BWXT NEC's operations continue as they do today.

To view our ERA, please visit:
http://nec.bwxt.com/safety/licensing

ERA Conclusions

BWXT NEC has a well-established and mature environmental monitoring program. Should pelleting in Peterborough occur, environmental monitoring programs similar to those in Toronto would be applied to the Peterborough operations and have been demonstrated to be effective in protecting human health and the environment.

Overall, estimated emissions associated with conducting pelleting and fuel bundle assembly operations at the Peterborough facility are determined to be low.

All radiological and non-radiological emissions are, and will continue to be, well-below regulatory limits.

For human health, there are no radiological or non-radiological risks to members of the public.

For ecological health, there are no radiological or non-radiological risks to the environment or wildlife.

Potential impacts of future activities at the Peterborough facility, should pelleting occur, are anticipated to be similar to the existing Toronto operation, which does not cause any adverse environmental or human health impacts.

No health or environmental impacts are expected as a result of BWXT NEC conducting pelleting operations and fuel bundle assembly at its Peterborough facility. Read the ERA here: http://nec.bwxt.com/licensing

Safety for Everyone

Nuclear Safety Oversight

The Canadian Nuclear Safety Commission (CNSC) is Canada's nuclear regulator. The CNSC is an independent agency that reports to Parliament through the Minister of Natural Resources. The CNSC has quasi-judicial powers, similar to a court of law, and can impose legal penalties such as fines on individuals and organizations.

The CNSC is responsible for regulating the use of nuclear energy and materials to protect the health, safety and security of Canadians and the environment. The CNSC monitors and regulates the entire nuclear fuel cycle and other uses of nuclear material, including uranium mines, mills, processing facilities, fuel fabrication plants, nuclear power facilities, radioactive waste management facilities, nuclear research facilities and nuclear substances processing facilities.

Any person or organization that wants to possess, use, transport or store nuclear material—or build, operate, decommission or abandon a nuclear facility, including a nuclear power facility—must first obtain a licence issued by the CNSC[1].

Our Safety Record

Safety is our number one priority. We focus each and every day on safe operations. Environmental, Health and Safety (EHS) is a shared responsibility, top business priority and is continually improved.

Protecting the health and safety of employees, the public and the environment has been, and will continue to be, one of our greatest responsibilities and priorities.

We have a robust and well-established integrated management system for environmental, health and safety program excellence.

Key components of the Health and Safety program include:

- Compliance with all safety and health-related regulatory requirements;
- The setting of EHS goals and objectives;
- Hazard recognition, risk assessment and change control processes;
- A comprehensive worker training program;
- Documented safety concerns, near misses and incidents with appropriate root-cause analysis, preventive and corrective actions.

[1] Canadian Nuclear Association

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. Ionizing radiation comes from natural, man-made sources such as x-ray machines, nuclear power plants and cosmic rays. Some examples of non-ionizing radiation include microwaves, radio waves and television signals.

The CNSC regulates the nuclear energy industry to limit the radiation that 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. The regulatory limit for members of the public is 1 mSv.

BWXT Nuclear Energy Canada (BWXT NEC) has a comprehensive radiation protection program and 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.

BWXT NEC's Annual Compliance Report, which is submitted to the CNSC every March, is posted to our website (http://*nec.bwxt.com/safety/our-compliance-record*). The purpose of this report is to demonstrate that BWXT NEC has successfully met the requirements of the Nuclear Safety and Control Act and its Class 1B Nuclear Fuel Facility Operating Licence.

Annual Effective Dose Limit to a Member of Public: **1 mSv**

No radiological effects to the public

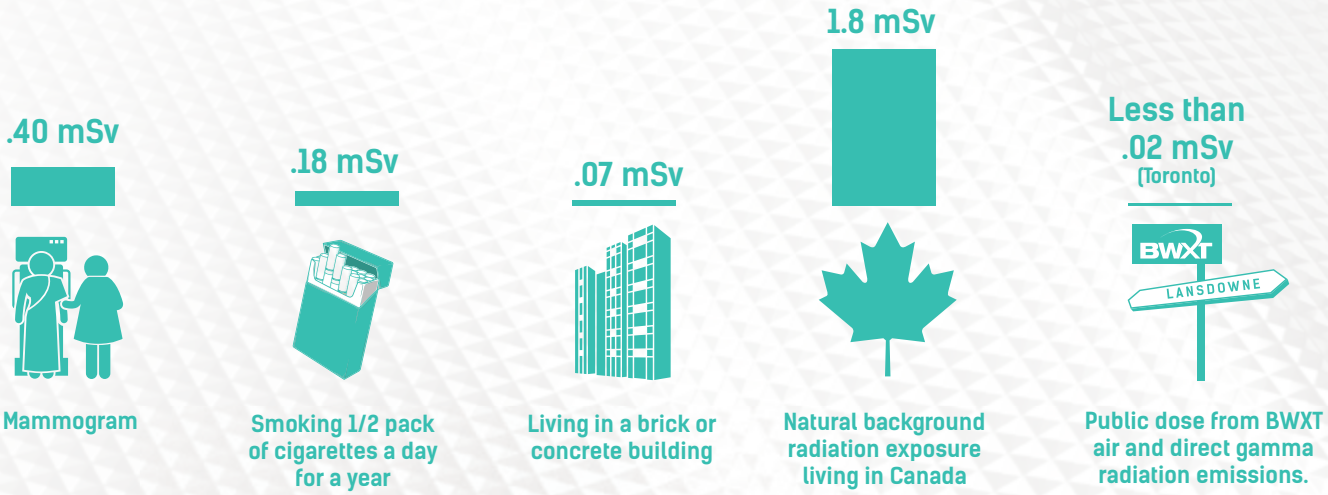
Toronto Emissions

BWXT NEC strives to emit as little emissions as possible and is constantly improving.

The data in the below table is based on the environmental release limits under the licence resulting from the renewal of CNSC Operating Licence FFOL-3620.01/2020.

Contaminant	Medium	2018 % of limit
Uranium	Water	0.3%
	Air	<0.1%

Radiation in Our Daily Lives



*Information obtained from http://www.ans.org/pi/resources/dosechart/ and http://nuclearsafety.gc.ca/eng/resources/radiation/introduction-to-radiation/radiation-doses.cfm except for Lansdowne data. That information is provided by BWXT Nuclear Energy Canada and verified by the Canadian Nuclear Safety Commission and Health Canada respectively.

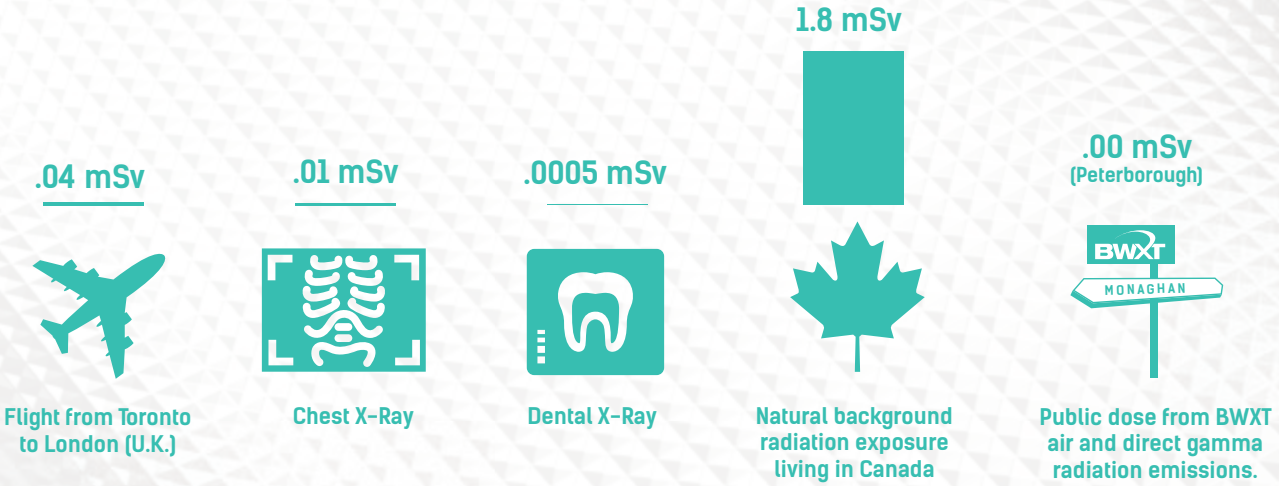
Peterborough Emissions

BWXT NEC strives to emit as little emissions as possible and is constantly improving.

The data in the below table is based on the environmental release limits under the licence resulting from the renewal of CNSC Operating Licence FFOL-3620.01/2020.

Contaminant	Medium	2018 % of limit
Uranium	Water	0.2%
	Air	<0.001%
Beryllium	Water	0.01%
	Air	0.04%

Radiation in Our Daily Lives



*Information obtained from https://www.nuclearsafety.gc.ca/cnsconline/doses/eng/index.cfm, and http://nuclearsafety.gc.ca/eng/resources/radiation/introduction-to-radiation/radiation-doses.cfm except for Monaghan data. That information is provided by BWXT Nuclear Energy Canada and verified by the Canadian Nuclear Safety Commission and Health Canada respectively.

Environmental Monitoring

BWXT NEC's environmental management system considers all relevant legal requirements and our programs demonstrate compliance to relevant federal and provincial legislation. Environmental protection programs are also compliant with CSA N288.4-10, Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills, CSA N288.5-11, Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills, and CSA N288.6-12, Environmental risk assessments at Class I nuclear facilities and uranium mines and mills.

We monitor air and water emissions at our Peterborough and Toronto operations. Test results demonstrate that both our Toronto and Peterborough facilities are very low emission plants with respect to uranium emissions, and in all cases are well-below regulatory requirements. In Toronto, we also conduct annual soil tests at 49 locations both onsite and in the surrounding community to ensure we meet or exceed regulatory environmental standards.

In addition, the CNSC conducts its Independent Environmental Monitoring Program (IEMP) at BWXT NEC's Toronto and Peterborough locations. The IEMP is an environmental monitoring program to verify that the public and environment around CNSC-regulated facilities are safe.

Results from the 2018 IEMP at both BWXT NEC's Toronto and Peterborough facilities indicate that the public and environment around the two facilities are safe and there are no health impacts.

More information about the IEMP can be found on the CNSC's website: *http://nuclearsafety.gc.ca.*

FACT: Canada's nuclear industry is among the most highly monitored and regulated industries in the world[1].

[1] Canadian Nuclear Association

Community

BWXT NEC is committed to connecting with the communities in which it operates in a timely, transparent and meaningful way. Below are some of the ways we keep our neighbours and community members informed in Peterborough and Toronto.

BWXT VOLUNTEER STRONG

Community Barbeques

Since 2016, BWXT NEC has held Community Barbeques at its Peterborough and Toronto locations to provide a means for neighbours, community members and other stakeholders to learn about our business and speak to subject matter experts. BWXT NEC provided information to members of the public on our safety and compliance, operations and capabilities, relicensing, public information program, and facts about natural uranium. This June, over 300 members of the community attended each barbeque. The CNSC was also in attendance to answer any questions from the community.

Community Newsletters

BWXT NEC distributes, and posts to its website, community newsletters as a tool to share information with the local communities about the company's operational performance, health and safety, activities in the community and general information. The Spring 2019 newsletter was mailed to the surrounding residents of the Peterborough and Toronto facilities. Electronic copies of the newsletters can be found on our website at:

https://nec.bwxt.com/about/library

Plant Tours

BWXT NEC provides facility tours to help engage members of the public in an effort to better understand our business. If you or your group is interested in receiving a tour, please contact questions@bwxt.com.

Toronto Community Liaison Committee

The Community Liaison Committee (CLC) was formed in 2013 to provide a forum for the exchange of information between BWXT NEC and members of the community near the Toronto facility. Members of the CLC can bring forward questions, discuss concerns and identify opportunities to improve community relations. BWXT NEC seeks to learn more about community priorities, interests and activities, and improve how BWXT NEC shares information about work at the Lansdowne Avenue facility, health and safety initiatives and community activities.

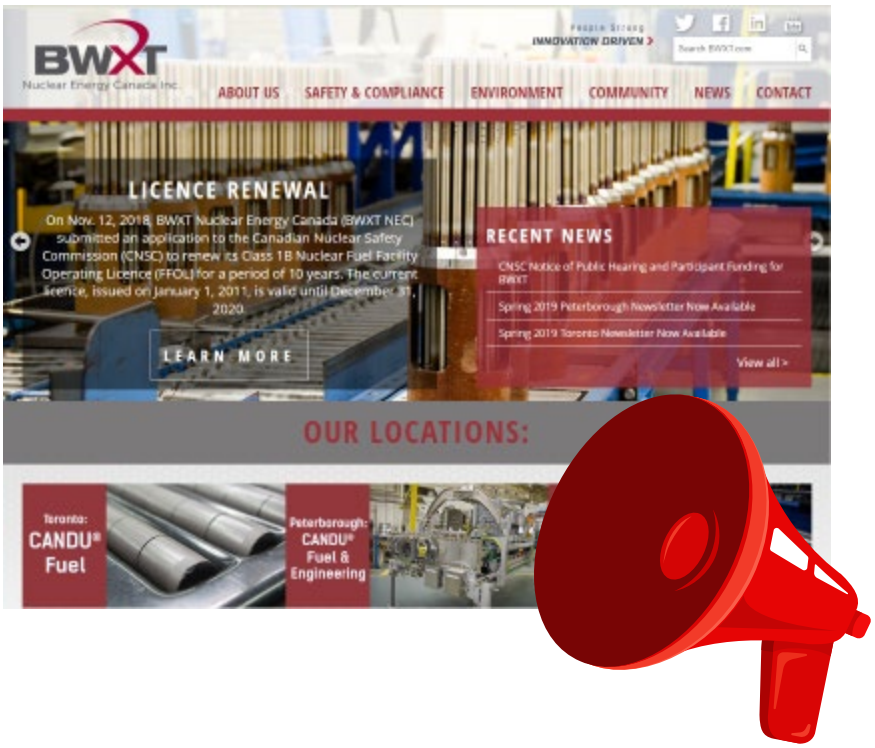
Community Investment and Volunteerism

At BWXT, we believe that healthy communities are strong communities. Through BWXT Volunteer Strong, our employees have the opportunity to help build stronger communities for those that live and work in them by volunteering time and expertise to local causes that are important to the communities in Arnprior, Peterborough and Toronto. We take great pride in giving back to our communities. BWXT believes that investing in the areas our employees live helps to develop stronger communities.

Public Information Program

BWXT NEC implements and maintains a Public Information Program that includes a dedicated website. Members of the public can request information through our toll-free 1.855.696.9588 number or via email at questions@bwxt.com.

Open communication is important to BWXT NEC and we make every effort to provide factual information easily and readily available to the community and anyone seeking information about our facility.



Indigenous Relations

Progressive Aboriginal RELATIONS **COMMITTED**

Canadian Council for Aboriginal Business

BWXT in Canada joined the Canadian Council of Aboriginal Businesses (CCAB) in 2017 and is committed to building and sustaining positive relationships with Indigenous communities in the areas in which it operates in Canada.

We are participating in the CCAB's Progressive Aboriginal Relations (PAR) certification program. PAR is an online management and reporting program that supports progressive improvement in Aboriginal relations, and a certification program that confirms corporate performance at the bronze, silver or gold level. If a company is a leader in Aboriginal relations, PAR certification recognizes the commitment and success.

Today, BWXT in Canada is PAR Committed – which indicates our commitment to continual improvement in Indigenous relations and our intention to undergo external verification of our performance in the future.

We have implemented a Canada-wide Indigenous Policy that provides the framework for our program. We are actively working through the program's criteria to maintain as certified in Progressive Aboriginal Relations. You can find more information on our commitment and this program on our website at *http://nec.bwxt.com*.

BWXT

Nuclear Energy Canada Inc.

To request more information:

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