

SUMMER 2018

From THE Point

STATION NEWS
FOR THE COMMUNITY

It Takes a Village

Environmental Safety: Local residents act as stewards helping Point Lepreau Nuclear Generating Station monitor the surrounding environment to provide data for an annual report to the public

Safe and Sound

Canada's nuclear safety regulator is on the job at Lepreau



Énergie NB Power

SAFE AND SOUND

CANADA'S NUCLEAR SAFETY REGULATOR IS ON THE JOB AT LEPREAU

If you know someone who works at the Point Lepreau Nuclear Generating Station (PLNGS), you've likely heard about our robust safety processes, procedures and behaviours. They are part of everyday work life for each Point Lepreau employee.

Did you know that every nuclear station in Canada also has a permanent inspection team from the safety regulator working right on site? These teams provide regulatory oversight and additional layer of safety assurance on behalf of all Canadians. Their role is to ensure rigorous compliance of Canadian Regulations and Safety Standards. The site team members work closely with their counterparts at the Canadian Nuclear Safety Commission (CNSC) in Ottawa and with the Point Lepreau management team.

Focused on protecting the health, safety and security of Canadians and the environment, the CNSC regulates nuclear and radiological-related activities in Canada including nuclear power generating stations, medical and research facilities, mining and processing facilities, transportation, and waste management facilities. They also provide clarity on regulatory expectations and oversees licenced activities to ensure that regulatory requirements are met. A government agency of National Resources Canada, the CNSC is recognized internationally for its commitment and leadership on development of rigorous and current standards.

For our part, Point Lepreau management and employees are committed to ensuring that we not only comply with requirements but go even further to keep our Station, employees and the public safe. We do this through our commitment to continuous training resulting in award-winning safety performance.



Focused on protecting the health, safety and security of Canadians and the environment

Heather Davis and Thomas Williams, CNSC inspectors.

Site Inspectors – Bringing oversight to the nuclear station shop floor

The CNSC's site inspectors, regional office staff and subject matter experts work together to inspect, enforce and report on compliance. CNSC inspectors are designated and empowered under the Nuclear Safety Controls Act (NSCA). Because they are permanently onsite at several major nuclear facilities, they are very familiar with site operations.

“There are six CNSC inspectors onsite at Point Lepreau who oversee daily operations. We walk-down key jobs, complete regulatory compliance verification activities and conduct regular inspections to verify the safe operation of the plant,” said Anupama Persaud, Power Reactor Site Office Supervisor. “Our job is to verify Point Lepreau is operating safely and is always in compliance with regulations and standards.”

Measuring performance every day of the year

Through the CNSC team's presence, performance verification happens daily. The CNSC team meets and works with its Station counterparts to scrutinize all aspects of plant operation.

As well, the on-site inspectors contribute to the CNSC's annual safety report, which summarizes industry results. It is presented to Commission members, an arms-length panel of experts who provide further oversight to the CNSC staff. The report is also made available to the public.

The CNSC confirmed in the 2016-17 annual report (link below) that Point Lepreau met all expectations in the evaluated areas of plant and human performance safety. Point Lepreau's conventional



health and safety as well as its safety analysis programs were noted as two areas of particular strength. nuclearsafety.gc.ca/eng/resources/publications/reports/annual-reports/index.cfm

The CNSC offers a participant funding program (link below) to assist members of the public, Indigenous groups and other interested parties to bring value-added information to the Commission through topic-specific interventions related to environmental assessment and licencing processes for major nuclear facilities. nuclearsafety.gc.ca/eng/the-commission/participant-funding-program/index.cfm

To complement existing and ongoing compliance activities, the CNSC also implemented its Independent Environmental Monitoring Program (IEMP) to verify that the public and environment around CNSC-regulated nuclear facilities are not adversely affected by releases to the environment. The CNSC conducts this verification through independent sampling and analysis. Results are publicly available on the CNSC's website: nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/index-iemp.cfm



STATION PERFORMANCE

POINT LEPREAU'S RECENT PERFORMANCE IS ONE OF ITS BEST EVER



Members of the Point Lepreau team, Jacob Whittaker – Senior Power Plant Operator and Kerrie Graves – Power Plant Operator.

The Point Lepreau Nuclear Generating Station (PLNGS) has achieved its best performance since 1994 with strong safety, reliability and electricity production results.

“We are pleased with the results our team achieved in the last year,” says Brett Plummer, Vice President Nuclear & Chief Nuclear Officer. “At Point Lepreau, we have dedicated significant effort and focus to performance improvement. The employees

have really come together to deliver concrete improvements in safety, human performance and equipment reliability. These results are a direct outcome of these efforts. I am really proud of the Point Lepreau team and what they have achieved together.”

“In part, the Station’s efforts have centred on training and culture,” Mr. Plummer says. Beginning in fiscal year 2015/16, the Station extensively restructured its performance improvement

program to concentrate a specific focus on safety, human performance, equipment reliability, training and building a culture of prevention. This shift brought the Station’s program more closely in line with the industry’s proven formula for plant improvement and involved PLNGS staff modelling and adopting industry best practices across a broad cross-section of Station activities.

PLNGS has reached out to the global nuclear community, including other CANDU operators for assistance, knowledge transfer of operational experience and collaboration on improvement initiatives. Through this effort Point Lepreau has been able to strengthen its understanding of best practices. This has been a defining feature and backbone of this effort.

“ PLNGS staff are a high performing team, who have taken great pride in returning the Station to the safe, reliable, predictable operation that New Brunswickers can count on ”

- Brett Plummer, Vice President Nuclear & Chief Nuclear Officer

Taken together, these advances have put PLNGS on a defined roadmap of continuous and sustained improvement.

“We know that the best plants in the world are the safest plants in the world,” said Gaëtan Thomas, NB Power President and CEO. “This year’s impressive performance numbers at PLNGS are evidence of a talented team and their commitment to safety, nuclear excellence, the community and this province. Our PLNGS team knows how important they are to efficiently and effectively meeting the province’s energy needs.”

In the first quarter of the fiscal year 2017/18, on June 15, 2017, the Station successfully earned a renewal of its five-year operating licence from the Canadian Nuclear Safety Commission (CNSC) after a rigorous and extensive public review process.

In the fourth quarter of the fiscal year 2017/18, on January 9, 2018, the Station became the first nuclear plant in Canada to achieve ISO 14001 certification to the updated and more rigorous 2015 Standard which speaks volumes about the workforce’s commitment to environmental stewardship of the lands on which they operate.

“PLNGS staff are a high performing team who have taken great pride in returning the Station to the safe, reliable, predictable operation that New Brunswickers can count on to provide clean, low carbon base-load power,” said Plummer. “The team’s hard work, nuclear professionalism and their commitment to meeting the high standards demanded by the nuclear industry are the main drivers for these excellent results.”

Point Lepreau Results

Below are some Key Performance Indicators and the Station’s results in the 2017-18 fiscal year ending March 31:

- **7.8 million person-hours without a Loss Time Accident (LTA)**

The PLNGS Team’s year-over-year commitment to safety has always been and remains strong. Station staff take great pride in this indicator as a demonstration of their everyday commitment to putting safety first in all decisions.

An LTA is an injury from which an employee is not able to return to work the next day or shift.

- **89.27% Net Capacity Factor exceeds target of 88.8% and is best result since 2007**

Capacity factor is the megawatt-hour output of a generating station compared to the maximum that could be produced.

- **2.24% Forced Loss Rate (FLR) is well below the 5% target and represents the best FLR for the Station since 2006**

FLR is the ratio of all power reductions compared to reference generation, which were not scheduled 28 days in advance.

- **At 91% on the nuclear industry’s Equipment Reliability Index (ERI), the Station has achieved its best score since it started tracking this industry measure in 1995**

ERI is a 100-point cross-functional index that assesses the health and status of the Station’s operations and equipment reliability through 18 sub-indicators.

- **Annual net electrical production of 5.16 TWh (Terawatt Hours) of low carbon electrical production is the best production performance of the Station since 1994. PLNGS production represents approximately 47% of the total net generation from NB Power generating stations in FY 2017/18**

One Terawatt hour is the equivalent of one million megawatt-hours.



PROUD TO BE PREPARED

LOCAL TEAM HONOURED FOR VOLUNTEER EFFORTS IN EMERGENCY PREPAREDNESS



Point Lepreau Wardens – Front: Troy Russell, Donald Beattie, David Floyd, Melvin Beney, Linda Robichaud, Wendy Lambert, Leona Enkel, Malcolm Hewey, David Rogers – Back: John Weir, Norman King, David Boyne, David Haggerty, Wayne Pollock, Jack Lambert, Bruce Enkel, Russell Palmer, Doug Rowlands

The best way to manage an emergency is to take all steps to prevent it from happening, while at the same time being fully prepared should the unexpected occur.

and human performance, plant and equipment maintenance, operational processes and procedures and environmental stewardship. In addition, we drill and prepare for all eventualities

team along with the Station's highly-skilled and trained Responders, although we don't do this alone. In addition to our onsite Responders, there are multiple agencies from local fire, ambulance and police services, as well as the New Brunswick Emergency Measures Organization (NBEMO) who partner and train with PLNGS throughout the year. Also, under the direction of NBEMO, there is a community-based volunteer group of 18 citizens known as the Warden Service, which has been in place since 1983. They put in countless hours a year to help prepare and educate the community, so they can be prepared in the unlikely event of an incident requiring an emergency response.

“The Warden Service is an excellent example of building resiliency together”

- Roger Shepard, Manager, New Brunswick Emergency Measure Organization – Provincial Nuclear Preparedness

At Point Lepreau Nuclear Generating Station (PLNGS), we operate our Station as safely as possible by striving for excellence in all aspects of our work including safety training

to ensure, should an emergency ever occur, we will be ready to respond quickly and effectively.

All of our employees are part of our emergency preparedness

On May 24, 2018, Public Safety Canada and the Senior Officials Responsible for Emergency Management (SOREM) recognized this team in a ceremony at the War Museum in Ottawa for the important contribution these individuals make to our community. (SOREM is a federal/provincial/territorial body that works to harmonize and improve emergency practices across the country.)

The Emergency Management Exemplary Service Award is a prestigious recognition for exceptional service and achievement across Canada to prevent, prepare for, respond to and recover from emergencies and disasters. As a partnership between provincial, territorial and federal governments, the award recognizes recipients who have achieved excellence in their respective fields.

“We are tremendously fortunate to have this group of people working with us in this capacity,” says Brett Plummer, Vice President Nuclear & Chief Nuclear Officer. “The service they provide is exemplary, just as the award suggests. Each one of these individuals could be recognized independently for their volunteer efforts in multiple facets of service across our community. Together, their efforts on this initiative are truly invaluable.”

The Warden Service contributes to emergency preparedness primarily through public engagement including assisting on notifications, distribution of potassium iodide pills, delivering and completing the Demographic Safety Survey and identifying

DID YOU KNOW?

- **NB Power has an Emergency Preparedness Program** that is integrated with several government and community agencies and volunteers. It is continuously assessed and drilled to ensure effectiveness including timely and accurate response.
- **NB Power is committed to ensuring public, employee and environmental safety**, and New Brunswickers can be confident in the collective emergency response capabilities. The effectiveness of our program is supported through public awareness and preparedness.
- **The Emergency Preparedness Program is reviewed by our regulator**, the Canadian Nuclear Safety Commission (CNSC). NB Power also participates in Provincial Nuclear Emergency Preparedness exercises that test the effectiveness and integration of our own emergency plans, along with those of our response partners. NB Power continues to maintain the safety of the Point Lepreau Nuclear Generating Station (PLNGS) by ensuring that the latest safety systems and equipment are in place and by updating emergency response plans and procedures on a regular basis.

people needing help in the event of evacuation. They also train to staff checkpoints and serve as guides to local residents.

“We put a human face on emergency preparedness and play a crucial role in ensuring our community is prepared,” says John Weir, Point Lepreau Chief Warden.

“The Warden Service is an excellent example of building resiliency together,” says Roger Shepard, Manager, New Brunswick Emergency Measure Organization – Provincial Nuclear Preparedness. “This emergency management exemplary service award is not

only a well-deserved recognition for all current members but for all those who served on the wardens’ service since its beginning.”

Across Canada, there are many deserving individuals and groups working on emergency management, such as community-based volunteers, people working in all levels of government in emergency management organizations and Indigenous communities. At Point Lepreau, we are fortunate to have 18 of them working on our behalf.



IT TAKES A VILLAGE

ENVIRONMENTAL SAFETY: LOCAL RESIDENTS ACT AS STEWARDS HELPING PLNGS MONITOR THE SURROUNDING ENVIRONMENT TO PROVIDE DATA FOR AN ANNUAL REPORT TO THE PUBLIC



Aaron Murray,
Health Physics
Technician,
collecting
periwinkles
for analysis.

Each year, NB Power's Point Lepreau Nuclear Generating Station (PLNGS) reports the findings of its environmental monitoring program, a collection of samples from food, water and air, to the Nuclear Safety Regulator and public, so they can see a precise picture of the Station's environmental performance. It helps Station managers ensure it is providing the greatest care possible for the habitat in which they operate.

nbpower.com/en/safety/nuclear-safety

“Without the help of these residents, it would be more difficult to get such an accurate picture of the daily life of the habitat and to determine so precisely the impact from Station operations”

- Joe McCulley, Health Physicist

Behind the report are environmental scientists who manage NB Power's monitoring programs. They track even the tiniest emissions from the Station operations to ensure protection of all aspects of our habitat. The monitoring team includes 20 local residents who contribute to this important work by providing samples of fish, well water and by allowing air monitoring stations to be set up on their property.

“Without the help of these residents, it would be more difficult to get such an accurate picture of the daily life of the habitat and determine so precisely the impact from Station operations,” says Joe McCulley,

Health Physicist. “We really appreciate the time these folks take to help us monitor and report.”

NB Power has filed its 2017 environmental monitoring program report. Year over year, the analyses indicate that radiation dose from PLNGS emissions continues to be well below the public dose limit (1,000 microsieverts (μSv) per annum), and well below the design and operating target for the Station (50 μSv per annum).

Our monitoring indicated a 0.73 μSv dose to the public. This is just a fraction (0.07%) of the safe, allowable limit of 1,000 μSv per year set by the Canadian Nuclear Safety Commission (CNSC) and is in keeping with international standards. To put this in perspective, natural occurring background radiation from the sun, rocks and other geological formations is approximately 2,000 to 5,000 μSv per year. By contrast, a single chest x-ray represents approximately 70 μSv .

Environmental monitoring is an important part of operating a nuclear facility. It ensures, through measurement, sampling, and analysis, that the health of the environment and people are protected. Years of study have unequivocally determined that PLNGS does not pose a radiological risk to plants, animals and people near the site. The CNSC independently collects and analyzes sampling results from the Point Lepreau area through its Independent Environmental Monitoring Program (IEMP). The IEMP was implemented to demonstrate that the public and the environment around licenced nuclear facilities are safe.

For more information on the results from the Point Lepreau Nuclear Generating Station, visit: nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/point-lepreau.cfm

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