Bruce Power™

Nuclear Operator

Realistic Job Preview

Energize Your Career

Bruce Power is looking for skilled, energetic people who want to work in a dynamic and innovative company. The job of a Nuclear Operator is unique and challenging. Learn more about this career opportunity and find out if being a Nuclear Operator is right for you.

Becoming a Nuclear Operator at Bruce Power

The Nuclear Operator job is unique and challenging. In this booklet, you will find up-to-date job information about all aspects of the job. Bruce Power is a young company with a bright future. As a high-tech company in a rural, lakeside setting, we offer a good quality of life in small town Ontario. We will be producing clean nuclear energy for many years to come and we are looking for skilled, energetic people who want to work in a dynamic and innovative company. We hope that by reading through this booklet, you will have a better idea if this is the job for you.

Table of Contents

Overview of the hiring process 4

Life as a new Nuclear Operator 6

Overview of the job 8

Training and career opportunities 12

Pay, supervision and work environment . . 13

Life outside of work 14

Critical success factors 15

What employees say about working at Bruce Power 16

A view of the turbine hall and the floor below at the Bruce B generating station.

Operators checking on radiation monitoring instrumentation.

An aerial view of Bruce Power's Tiverton site.

"What can I expect when applying for the job?"

Step 1: Vacancy

A vacancy is advertised. Applicants must submit an application online at www.brucepower.com. Applicants must be eligible to work in Canada.

Step 2: Review

Applicants will be reviewed to determine if they meet the following criteria:

A Grade 12 diploma from a Secondary School that includes Grade 12U (university preparation) mathematics, physics and chemistry, or Ontario Academic Course (OAC) credits in mathematics, physics and chemistry. Candidates will be expected to have both chemistry and physics credits to ensure success on the job. If a candidate does not have the Grade 12U or OAC credits in the areas required above, he/she must have an Ontario Secondary School (or equivalent) diploma plus completion of a minimum two-year College Technician or Technologist diploma in a related program (e.g., power engineering, marine engineering, chemical production engineering), which would include courses equivalent to 12U/OAC mathematics, chemistry, and physics.

As applicants progress through the selection process, they will be required to demonstrate that they meet the educational requirements by providing transcripts and diplomas earned.

Step 3: Testing

Qualified applicants will be invited to write a test that measures the specific skills and aptitudes needed to become a Nuclear Operator.

Candidates must pass this test in accordance with the minimum criteria required for the job.

Step 4: Interview

Candidates who are successful at the testing phase will be invited to attend a structured, behaviour-based interview.

The interview will consist of a series of job-related questions. All candidates are asked the same structured questions and evaluated against the same job-related criteria.

The questions are behaviourally-based (i.e., candidates are asked to provide examples of how they have dealt with various job-related scenarios in the past to demonstrate they have the relevant experience).

Step 5: Short List

A job offer is conditional on successfully passing the following:

Security checks: Working in at a nuclear facility requires a very detailed security background clearance process. Applicants are subject to Canadian Security Intelligence Service, Royal Canadian Mounted Police and Ontario Provincial Police background checks prior to site admittance. The security process can take approximately 4-6 weeks to complete. Successful candidates will need to ensure their paperwork is completed in a thorough and timely manner.

Medical requirements: Applicants must complete a medical information questionnaire.

Applicants' references will be checked.

The view of Bruce A generating station from Bruce Power's Visitors' Centre.

View of Bruce B generating station from Lake Huron.

"We have defined diversity as the acknowledgement and appreciation that each individual has unique perspectives and life experiences. By embracing and respecting these visible and invisible differences, we create an environment where each employee feels empowered to achieve his or her best."

Duncan Hawthorne, President & CEO

“What’s life like as a new operator?”

Currently, Bruce Power operates six nuclear reactors, with two reactors at Bruce A and four reactors at Bruce B. We are in the process of restarting two more units at Bruce A — a massive capital project that will boost our capacity by 1,500 megawatts.

Although there are some minor differences between the two stations, Nuclear Operators are essentially the same at both stations. There are three specializations, or streams, in the Operator family. Each new operator is assigned to one of these streams at either Bruce A or B.

Stream 1 - Generating Units

Stream 2 - Common Services*

Stream 3 - Fuel Handling

**Common Services is also known as Unit 0.*

Typically, once assigned to a particular stream and a particular station, operators do not tend to move between streams or between stations, unless requested.

Orientation and Training

Upon hiring, candidates begin orientation and training, with three months at Nuclear Power School. Success requires the ability to be self-directed, to learn within short timeframes and to process lots of information. Until an operator is qualified to work on his or her own, they will be accompanied by a more experienced Operator. Once qualified, they will work without such supervision.

Nuclear Operators are required to complete extensive classroom and computer-based courses. Training focuses on both the aspects of the job that are common across all streams and are specific to one particular stream.

Periods of classroom and computer-based courses are balanced with on-the-job training. During on-the-job training, the trainee will work under the guidance of an experienced operator. Classroom and computer-based training will typically be more theoretical while on-the-job training will involve the application of classroom learning.

Training Length

New operators will be placed in both general and stream-specific training courses, alternating with periods of shift assignment, which allows the trainee to relate the training to the job. Some streams may take longer to complete due to the nature of the material and the stream. Altogether, training may take up to two years to complete.

Testing

Trainees are tested at every phase of the program. Classroom knowledge is evaluated using tests and exams. Applied knowledge (e.g., demonstrating proficiency in the field environment) is tested using Job Performance Measures. An operator is considered to be “stream qualified” upon successful completion of a series of both classroom testing and Job Performance Measures and after demonstrating competency to their supervisors.

Probationary Period

The first six months of training are a probationary period for the new operator. Mandatory union coverage and access to Bruce Power benefits, including pension plan enrolment are provided during this period.

A Nuclear Operator in Training (NOIT) gets some assistance from an instructor.

Fireworks from Bruce Power's annual Beach Party in Port Elgin. Small town living on the shores of Lake Huron has its share of benefits.

The turbine hall in the Bruce B generating station.

"What is my day-to-day work life going to be like?"

It's a natural question, so we offer this broad description of the duties and other characteristics of an operator's job. It is not meant to be exhaustive in its description but rather a summary of some of the key aspects of the job.

Job Duties

All staff are required to adhere to safety procedures at all times to proactively prevent workplace accidents and protect their own safety and the safety of others.

Situations may arise where a problem, though not serious, requires immediate action. Corrective actions required are relatively simple like isolating equipment. Effective corrective action requires familiarity with and strict application of the required safety procedures. Personal protective equipment and clothing are worn to minimize exposure to hazardous materials.

Equipment maintenance and surveillance

A significant portion of an operator's duties is to make rounds of their designated area within the plant to check and maintain the operating status of equipment and systems such as pumps, fans, motors and gauges. This type of task requires operators to detect and rectify problems within their area of discretion. This could mean monitoring and maintaining system pressure, temperatures, water levels, and checking the integrity of the equipment.

Operator overseeing Water Treatment Plant process connections being made by mechanics.

While these tasks may sometimes be repetitive, they are important and require a specific skill set. Effective monitoring requires a high degree of precision, attention to detail and comfort with repetitive tasks. Upon detecting a problem, an operator either contacts his or her supervisor and addresses the problem by making routine adjustments to the equipment to maintain its operating status, or notifies the appropriate personnel and documents the deficiency based on standard operating procedures.

Housekeeping and administration

Several hours in the shift might be required to complete routine or regular inspections of equipment. These duties include cleaning equipment and work areas, topping up liquid levels, ensuring equipment and work areas are safe and requesting work on equipment from other groups which requires the completion of specific documentation and procedures.

Administrative duties such as initiating work requests, material requests, record keeping, work reports and document corrections might also be required. Operators are required to use a computer to complete the majority of these administrative tasks.

Testing and sampling

Testing equipment is a large part of the operator's job. It may involve local or remote manipulation of equipment like valves and the start-up/shut down of fans and pumps to simulate certain operating conditions. It might also include drawing samples and in some cases, after chemical technicians have conducted analyses, initiating corrective actions such as adding chemicals to maintain system specifications.

Physically intensive duties

There are a number of physically intensive aspects to the operator job.

These may include:

- working rotating shifts
- working in confined spaces
- working at heights, outdoors
- manually removing equipment components
- manually opening and closing valves
- manually carrying heavy loads
- wearing personal protective equipment

Ancillary Services Operators with a dry storage container.

"What else do I need to know?"

Other important characteristics of the job include:

Schedule

There are two shift types at Bruce Power that will be applicable to new operators: an eight-hour day shift for training and a set of rotating 12-hour shifts. Operators are required to work shift and need to be flexible in their availability.

Most operators work in rotating 12-hour shifts scheduled from 8 a.m. to 8 p.m. or 8 p.m. to 8 a.m. Everyone is required to work weekdays, weekends and statutory holidays, day shifts and night shifts. A one-year schedule is set in advance and is balanced over the course of the year to average out to 40 hours per week. Typically, a period of two or three shifts on is followed by a similar time period off.

Variety

Much of the operator duties involve repetitive tasks. Variety is dependent upon plant conditions and stream areas of work.

Opportunities for hands-on activities are limited because the systems are highly automated. However, because of the number of systems, job duties require exposure to a wide variety of systems.

Operators in the Common Services/Unit 0 stream tend to work outdoors more often than those in the other two streams.

Discretion and Responsibility

Operators are responsible for the safety of personnel, the station and the community. This is accomplished through strict adherence to policies and procedures at all times. There is little discretion in the way tasks are carried out.

Nuclear Operators in Training (NOITs) raise money for the Heart and Stroke Foundation.

Co-workers

Qualified operators typically work alone unless physical assistance is required or safety precautions or procedures deem it necessary to have more than one worker. New operators undergoing training will work with someone else until they are qualified.

Workload

Operators have a full workload during each shift. Each operator is assigned a set of routine tasks to complete. Upon completion of these tasks, additional work is assigned by supervisors for the balance of the shift. Operators in all streams have a steady workload all year round, though it can increase significantly during unit shutdowns.

Bruce Power's Corporate Support Centre on the Tiverton site.

"Do I have to keep training and where can I go from here?"

Training

Qualifications must be renewed or refreshed every one to three years depending on the task and stream. Qualifications can also be upgraded to broaden one's skill set. Operators will need to take an active role in monitoring their training needs.

Career opportunities

Individuals can move to different positions at the same level in the organization (lateral move) or can move to higher positions (vertical move).

Lateral moves typically involve getting a position in one of the other operator streams or moving elsewhere in the organization to non-operator positions which will require re-training. These moves will also depend on the availability of replacements for the operator wanting to make the move.

Operators can move vertically into various supervisory positions including Union Team Leader, Supervising Nuclear Operator and Field Shift-Operating Supervisor. Interested individuals go through a selection process in which candidates' seniority and qualifications are considered. Qualified operators may also be considered for control room operating positions like Authorized Nuclear Operator or Control Room Operator.

These positions require extensive training, above and beyond the training period required for the operator position. Nuclear Operators don't become eligible for control room operating positions until they have demonstrated competency in the nuclear operator position for several years.

Nuclear Operators in training.

Instruction on installation of high voltage circuit breaker.

Job Performance Measure (JPM) testing on electrical equipment.

"What about pay, supervision and work environment?"

Pay and benefits

Pay and benefits are based on a union collective agreement; both are very competitive. There is an opportunity to progress within the operator job family. Economic increases are negotiated between Bruce Power and the Power Workers' Union.

Gain sharing payments are offered contingent on the company meeting its business commitments including but not limited to safety targets, timelines and production targets. Your total rewards package will include health and dental benefits, group life insurance, vacation and short term and long term disability coverage.

Supervision

At the start of their shift, operators are provided with a pre-job briefing which details the activities to be completed on the shift and any hazards associated with that work. Union Team Leaders, Supervising Nuclear Operator and Field Shift Operating Supervisors are easily accessible at all times.

Supervisors will periodically observe the execution of operator duties, but they do not constantly monitor their work. Any additional non-routine work assigned by supervisors during the shift would be accompanied by an additional pre-job briefing. Typically, at the end of each shift a debriefing of the shift's activities also takes place.

Work environment

Operators work indoors for the majority of their shift under artificial light. The exceptions to this are the Common Services/Unit 0 Operators. They work indoors and outdoors.

Operators may have to crawl into tight spaces, work in extreme temperatures and work in areas with high noise levels. All operators work at significant heights on floors with gratings that have 10 metre drops under the gratings and work from elevated platforms. Operators may also have to deal with strong odours during the course of some duties.

Operators are on their feet for the majority of their day moving through large portions of the station. Surveillance work requires walking around the station and climbing ladders and stairs. Personal protective equipment and safety clothing are worn and additional protective gear may be required depending on the work being performed.

Operators work with equipment or containers that may contain hazardous materials such as radioactive materials and chemicals. However, hazardous materials are contained and highly monitored, minimizing threat. Exposure to radiation is monitored at all times and is kept well below regulatory limits.

Protective equipment and clothing is available at all times for duties that require them. Some of the equipment and clothing can be heavy, warm and restrictive. Operators should be comfortable being constrained sometimes for extended periods.

Bruce Power has implemented highly secure locker room facilities, separated for men and women. Most operators will be required to change into or out of their safety clothing frequently as required by job duties. Individuals will need to be comfortable disrobing in front of their same-sex colleagues because of non-partitioned same-sex locker room and shower facilities.

Operators do not leave the protected plant area during their shift. They must be available to satisfy staffing requirements.

“What else do I need to know?”

Safety culture
Bruce Power is highly safety conscious. Such a safety culture reduces the potential for any serious accidents.

Job security
The amount of resources dedicated to training Nuclear Operators makes them a valuable resource at Bruce Power.

Camaraderie with co-workers
Relationships can and do extend beyond the workplace. Because operators are usually working with a small group and the communities surrounding Bruce Power are small, it is possible to get to know co-workers very well.

Community involvement
Bruce Power supports community involvement initiatives, both by being involved as an organization and by giving its workers the opportunity to become involved in the community as volunteers.

Variety
Much of the operator duties involve repetitive tasks and variety is dependent upon plant conditions and stream areas of work.

Small town environment
This area of Ontario provides a large number of outdoor activities and a lower cost of living than metropolitan areas.

Shift work
Switching between day and night shift can be disruptive. Time is spent physically recovering between shifts. Working weekends can also be difficult. It helps that schedules are set in advance, providing plenty of notice.

Volunteers from Bruce Power plant trees in the community.

Kincardine’s lighthouse is one of the town’s most famous landmarks.

"What does it take to be a good operator?"

Review the following list of factors important for success and satisfaction as a Nuclear Operator. Use the list as a self-assessment guide to think about how well your skills match those necessary to be successful at the job.

Can I...

- Direct my own learning (i.e., study independently during training)?
- Accept criticism about performance and make the required changes?
- Stay focused and attentive when doing repetitive tasks?
- Follow strict policies and procedures?
- Work with minimal supervision?
- Handle shift-work?
- Stay alert, even during night shifts?
- Respond in a calm and effective manner when priorities change?

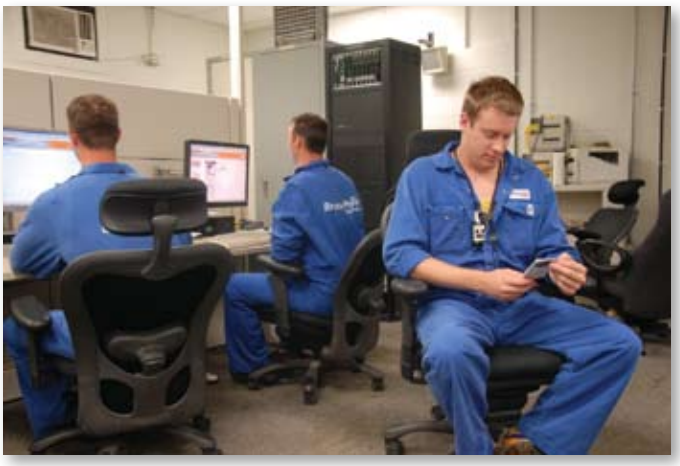
Am I...

- Comfortable working in a controlled environment with hazardous chemicals or contaminated materials?
- Comfortable with radiation protection equipment (e.g., plastic suits, respirators) and personal protection equipment (e.g., footwear, hearing protection, gloves)?
- Interested in the mechanical, electrical and technical functioning of equipment?
- Detail orientated?
- A conservative and methodical decision-maker?
- Capable of meeting the physical challenges of this job?

Will I...

- Be safety conscious?
- Mind doing repetitive work?
- Mind working on jobs that involve other work groups?

Supervising Nuclear Operator (SNO).



Operator checking Uniform Subject Index (USI) booklet for equipment identification.

What our operators have to say about the job and Bruce Power:

"Bruce Power offers an enthusiastic and positive work environment. It offers professional enhancement opportunities and provides a safe workplace to work and learn."

Jessica Marin
Nuclear Operator in Training

What others have said:

"Safety is our number one value and priority at Bruce Power."

"Bruce Power has a social conscience. The community is Bruce Power and Bruce Power is the community. The company reflects the community values to a greater degree than what one would find in the city."

"Shift crews are often described as a shift family. People care for each other here because it is a small community."

"In this day and age, job security is a big issue, but you'd be hard pressed to find a more secure job in this area (of work)."

"A nice thing about the area is that there is a lot to do if you like to be outside and there is fresh air and quiet."

Bruce Power™