

**Job Class Profile:**              **Power Engineer (Third Class)**

**Pay Level:**                      **CG-26**                      **Point Band:**                      **490-533**

Factor	Knowledge	Interpersonal Skills	Physical Effort	Concentration	Complexity	Accountability & Decision Making	Impact	Development and Leadership	Environmental Working Conditions	Total Points
Rating	4	2	4	6	3	2	2	1	6	
Points	187	33	25	29	90	43	41	21	64	533

## JOB SUMMARY

The Power Engineer (Third Class) is responsible for the operation and maintenance of a high pressure heating plant.

### Key and Periodic Activities

- Operates high pressure boilers and related equipment in a safe and efficient manner.
- Records and maintains records of daily work activities.
- Performs chemical analysis of boiler water treatment and adds chemicals as required.
- Maintains records of fuel consumption and steam produced; prepares reports on steam consumption for various government buildings.
- Makes adjustments to boilers to ensure they are operating efficiently.
- Drains and flushes boilers; cleans tubes; prepares boilers for annual inspection; disassembles and reassembles boilers, as required.
- Performs repairs to boilers.
- Repairs pipes, paints and removes equipment for repair or replacement, as required.

## SKILL

### Knowledge

#### General and Specific Knowledge:

- Policies and Procedures
- Safe Work Practices
- Occupational Health and Safety Guidelines
- Boiler Pressure Vessel Act and Regulations

#### Formal Education and/or Certification(s):

- Minimum: High School Diploma. Completion of a 1 year Power Engineering (Fourth Class) Program or completion of a 3 year Mechanical Engineering Technology Program combined with the required work experience and possession of a valid third class power engineer's certificate issued by the Province of Newfoundland and Labrador.

#### Years of Experience:

- Minimum: 3 to 4 years

### **Competencies:**

- Follow basic instructions and work processes when installing or repairing equipment
- Apply established techniques to the completion of activities
- Develop new solutions to deal with new problems
- Write straightforward text for record keeping and maintaining a log book
- Repair, calibrate and operate machinery
- Conduct analysis or assessment

### **Interpersonal Skills**

- A range of interpersonal skills are used including listening to information from other people, asking questions to obtain information and providing routine information and direction to others.
- Communications occur with employees within the immediate work area and department and include supervisor/manager, other power engineers and staff as well as general contractors regarding electrical; plumbing; oil and propane delivery, etc.
- The most significant contacts are with the supervisor/manager to coordinate work activities and for advice/guidance on any problems related to equipment or plant operations; Chief Power Engineer regarding technical advice and support; and with co-workers in the performance of daily activities.

## **EFFORT**

### **Physical Effort**

- The demands of the job occasionally results in fatigue, requiring periods of rest.
- Lifting or moving objects weighing 10 to 25 lbs. is performed on a regular basis and lifting or moving objects over 50 lbs is an occasional requirement.
- Work activities typically involve sitting, standing or walking to complete tasks. Climbing ladders may be required occasionally.
- Manual or physical activities includes performing fine finger or precision work; using hand tools that require accurate control and steadiness; using gross motor skills; maintaining physical balance and working in awkward or cramped positions or body movement when working in confined spaces.

### **Concentration**

- **Visual concentration or alertness** is required when reading boiler pressure gauges, computer screen and smoke monitor.
- **Auditory concentration or strain** is experienced when working in a noisy power plant and listening to operational sounds of plant equipment to identify any unusual sounds that may require investigation.
- **Other sensory demands such as smell** is important to identify oil and/or gas leaks or to determine if anything is burning; and touch is important when checking equipment to ensure it is working properly.
- **Alertness and concentration** are required when making repetitive rounds of plant to ensure

equipment is operating properly and when reading gauges, recording information, etc.

**Higher than normal levels of attentiveness or alertness for the health and safety of others** is required when monitoring employees and surroundings while working in a high risk situation.

- **Time pressures and deadlines** are experienced when diagnosing and repairing equipment problems and when responding to emergency situations. **Interruptions and lack of control over work pace** can occur with equipment failure; during periods of annual maintenance on boilers and when performing repairs to equipment.
- **Eye/hand coordination** is required when making fine adjustments to the boilers while observing the fire inside the boiler and the smoke monitor.
- **Exact results and precision** are required when performing repairs to equipment or when performing chemical tests on boilers.

### Complexity

- Work involves operating and maintaining high pressure boilers in a high pressure plant which requires performing tasks that are different but use similar skills and knowledge.
- A typical problem or challenge is diagnosing a problem with equipment and determining the most appropriate method required to perform the repair while ensuring minimal downtime of equipment. Troubleshooting and diagnosis may require analysis and development of new solutions as technology changes.
- Reference material to assist in addressing problems, challenges and issues include policies and procedures; manufacturer's specifications and operational procedures; Boiler Pressure Vessel Act and Regulations; and advice/guidance from supervisor/manager or Chief Power Engineer.

## RESPONSIBILITY

### Accountability and Decision-Making

- Work tasks and activities are highly monitored or controlled.
- Work independently in the performance of daily work activities within a highly controlled and regulated environment. Have authority to use stocked materials and spare parts, as required. Problems or issues can be referred to the supervisor/manager or the Chief Power Engineer.
- Supervisory approval is required for most day-to-day decisions.
- Discretion and independence of action is exercised to ensure plant is working in a safe and efficient manner and to respond to emergency situations.

### Impact

- Work results can have a positive impact within the immediate work area; department; organization and on customers/clients/patients/general public as well as on resources such as equipment; processes and systems; finances; facilities; health and safety and corporate image when power plant and auxiliary equipment is operated and maintained safely in accordance with applicable standards and regulations.
- Mistakes or errors resulting in lack of steam production can cause equipment breakdown and system failures; damage to equipment resulting in increased cost of repairs or replacement;

loss of heat resulting in government building closures or shut down of laundry operations; health and safety issues for building occupants; and a negative impact on corporate image, etc.

- All readings and events are logged and recorded and work is reviewed by the Chief Power Engineer. Errors are typically identified and resolved within hours of problem identification.

#### **Development and Leadership of Others**

- Not responsible for the supervision of staff.
- May provide advice and guidance to other employees.

### **WORKING CONDITIONS**

#### **Environmental Working Conditions**

- There is a requirement to wear safety equipment such as ear and eye protection; safety shoes; vest; gloves, etc.
- The likelihood of minor cuts, bruises, abrasions or minor illnesses resulting from hazards in the job is significant. Fractures and partial or total disability is limited.
- Work is performed in a high pressure power plant with exposure to undesirable working conditions such as unusual/distracting noise; dust; fumes; vibration from equipment; odours; sharp objects; working in awkward or confining work spaces; temperature extremes and fire.