

# Power Plant Engineer – Subsidiary 4

## APS Benchmark Listings

Sub .	Bench mark No.	Department	Working Title Job Title	Know-How				Creativity/ Problem Solving		Responsibility		Total Points
				Prof./ Cont.	Comp. Div.	H.R. Skills	Points	%	Points	Profile	Points	
<b>Power Plant Supervisor 3rd Class (Point Range 269 - 313)</b>												
004	<a href="#">046PP20</a>	Infrastructure	Power Plant Eng. 3rd Class: Supvr.	D+	I	2	175	29	50	R1	57	282
<b>Power Plant Engineer 3rd Class (Point Range 192 - 227)</b>												
004	<a href="#">044PP18</a>	Infrastructure	Power Plant Eng. 3rd Class	D	I	1	132	25	33	R1	38	203
<b>Power Plant Engineer 4th Class (Point Range 161 - 191)</b>												
004	<a href="#">043PP16</a>	Infrastructure	Power Plant Eng. 4th Class	D-	I	1	115	25	29	R1	33	177

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## Subsidiary 4 Benchmark Evaluation - 046PP20

### Identification Section

<b>Working Title:</b>	Power Plant Engineer 3rd Class: Supervisor
<b>Department:</b>	Infrastructure
<b>Division, Branch/Unit:</b>	Property Management, Alberta Research Counsel - Mill Woods, Edmonton and Area Region
<b>Reports To:</b>	Facilities Manager
<b>Levels to D.M.:</b>	5
<b>Job Description:</b>	046PP20
<b>Minimum Recruitment Standard:</b>	See the <a href="#">Minimum Recruitment Standards</a> for Power Plant Engineer
<b>Job Code:</b>	046PP - Power Plant Engineer 3rd Class Supervisor

### Comments on Role

Position supervises the operation and maintenance of a large physical plant consisting of high and low pressure boilers and a variety of other mechanical building equipment and systems. Has full supervisory responsibility for five 4th Class Power Plant Engineers and oversees contracted resources who operate various facilities or perform capital construction.

### Evaluation

Knowledge	Creativity / Problem Solving	Responsibility	Total Job Points
D+I2 175	29% 50	R1 57	282

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## Comments on Evaluation

- **Knowledge:**

- **Professional/Content Knowledge:**

- Position requires certification as a 3rd Class Power Plant Engineer and extensive related experience operating a variety of building mechanical equipment and systems in addition to high-pressure boilers. Position also manages many diverse complex contracts and is considered the expert on site, pushing content knowledge to a D+ rating.

- **Complexity and Diversity:**

- Position independently oversees the operation and maintenance of a large physical plant. Supervisory responsibilities require a thorough awareness and co-ordination of a staff of 4th Class Power Plant Engineers.

- **Human Relations Skill:**

- Supervisory responsibilities require the ability to influence the behaviour of subordinates through the use of communication skills in the guiding, training and providing of expertise to subordinates.

- **Creativity/Problem Solving:**

Position is responsible for the operations and maintenance of a wide variety of mechanical building equipment in accordance with department standards and manufacturer specifications. Primarily operational, this is a diverse role limited not only to operating plant equipment and systems, but also oversees a large number of contracts. This position has supervisory responsibilities and is required to schedule manpower.

- **Responsibility:**

Position is focused on service delivery, ensuring that building equipment is effectively operated and maintained.

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**Last Reviewed:**

# Subsidiary 4 Benchmark Job Description - 046PP20

## Identification Section

<b>Working Title:</b>	Power Plant Engineer 3rd Class: Supervisor
<b>Department:</b>	Infrastructure
<b>Division, Branch/Unit:</b>	Property Management, Alberta Research Counsel - Millwoods, Edmonton and Area Region
<b>Reports To:</b>	Facilities Manager
<b>Levels to D.M.:</b>	5

## Purpose

**(Brief summary of the job, covering the main responsibilities, the framework within which the job has to operate and the main contribution to the organization.)**

The Power Plant Supervisor 3rd Class is responsible for the operation and maintenance of a large physical plant comprised of low and high pressure boilers, chillers, refrigeration units, HVAC and EMCS systems, backup diesel power generators, reverse osmosis systems and other related auxiliary equipment. Most equipment is computer controlled.

Position is required to supervise a skilled unit of Power Plant Engineers.

## Responsibilities and Activities

**(Purpose of the job can be broken down in different responsibilities and end results. Each end result shows what the job is accountable for, within what framework, and what the added value is.)**

- 1. Supervises the operation and maintenance of a large-scale physical plant in a large research facility in accordance with 'The Boiler and Pressure Vessel Act' and Regulation and within the framework of prescribed operating code and procedure.**

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Instruct, train and assist subordinates. Perform annual performance appraisals.

Requisition materials, equipment and parts. Maintain material inventories and authorize material purchases.

Maintain records, verify timesheets, compose letters and prepare reports.

Ensure that preventative maintenance schedules are followed for physical plants. Investigate and recommend improvements to maintenance schedules.

Identify, analyze and recommend solutions to problems in areas of plant operation.

Respond to emergency call-backs.

Oversee Strathcona County Health Centre HVAC systems via computer network.

**2. Oversee private sector contractors.**

Develop and supervise contracts related to the operation and maintenance of physical plant.

Current operational contract management includes Security Services, Refrigeration Services, Centrifugal Liquid Chillers and Equipment, Elevator Maintenance, Solid Waste Removal, Fume hood Testing & Certification, Air conditioning Systems and Atlas Copco Air Compressors.

Specific project contract management has included Air Systems Balancing, Autoclave Steam Generator Installation, Variable Frequency Drive Installation, Halon Systems Replacement, Ventilation Systems upgrade and fume hood alarm system upgrades.

**3. Operate and maintain plant auxiliary equipment.**

Cover-off vacations, statutory holidays, illness or special leave.

Compile logs, records and files on plant operation.

Recommend improvements to increase system efficiency and performance.

**4. Other related duties.**

## Scope

**(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)**

Position supervises several positions who operate and maintain a large research facility comprised of low and high pressure boilers and a variety of complex computer controlled HVAC equipment. Responsible for safe and efficient plant operation with minimum interruption and down time.

## Contacts

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**(Main contacts of this position and the purpose of those contacts.)**

Position provides direction, guidance and feedback to staff and contractors. Much of its contact is with staff for the purpose of guidance, training and evaluation.

## Knowledge, Skills and Abilities

**(Most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others not only diplomas and degrees. Specific training if it is an occupational certification/registration required for the job.)**

- Requires a full working knowledge of physical plant equipment and systems of considerable scale and complexity including high-pressure boilers and various building control systems.
- Must have supervisory skills and the ability to direct the work of skilled trades.
- Position requires knowledge of contracting and tendering procedures.
- Requires a 3rd Class Power Plant Engineer Certificate and extensive related experience.

## Organization

**(Working titles of positions reporting directly to this position.)**

Position has full supervisory authority for five Third Class Power Plant Engineers.

# Subsidiary 4

## Benchmark Evaluation - 044PP18

### Identification Section

<b>Working Title:</b>	Power Plant Engineer - 3rd Class
<b>Department:</b>	Infrastructure
<b>Division, Branch/Unit:</b>	Property Management, South Region, Alberta Research Council, Millwoods
<b>Reports To:</b>	Operations Supervisor, Power Plant Supervisor - 3rd Class
<b>Levels to D.M.:</b>	6
<b>Job Description:</b>	044PP18
<b>Minimum Recruitment Standard:</b>	See the <a href="#">Minimum Recruitment Standards</a> for Power Plant Engineer
<b>Job Code:</b>	044PP - Power Plant Engineer 3rd Class

### Comments on Role

Position operates and maintains building system equipment in a large research laboratory. Equipment includes air, heat and cooling systems, water treatment systems and low and high-pressure boilers. A well-rounded knowledge of a wide range of processes is also required.

### Evaluation

Knowledge	Creativity / Problem Solving	Responsibility	Total Job Points
DI1 132	25% 33	R1 38	203

### Comments on Evaluation

- **Knowledge:**

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**Professional/Content Knowledge:**

- Position requires a 3rd Class Power Plant Engineering Certificate. Position must have a working knowledge of boiler operations, HVAC systems, refrigeration systems and other related physical plant systems. This working level knowledge results in a D rating.

**Complexity and Diversity:**

- Position functions independently using technical skills to operate and maintain building environment systems. This position assists other tradespersons and oversees work of contractors.

**Human Relations Skill:**

- Communication skills exercised are used mainly for receiving instruction and providing status updates to supervisors.

**▪ Creativity/Problem Solving:**

Position shares responsibility for the operation and maintenance of some complex building system equipment. Assistance is available and judgement is guided based on established guidelines, past precedents and standards.

**▪ Responsibility:**

Position's focus is on service delivery in the operation and maintenance of building environment systems.

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**Last Reviewed:**

Last Review / Update: 2016-03-11



# Subsidiary 4 Benchmark Job Description - 044PP18

## Identification Section

<b>Working Title:</b>	Power Plant Engineer - 3rd Class
<b>Department:</b>	Infrastructure
<b>Division, Branch/Unit:</b>	Property Management, South Region, Alberta Research Council, Millwoods
<b>Reports To:</b>	Operations Supervisor, Power Plant Supervisor - 3rd Class
<b>Levels to D.M.:</b>	6

## Purpose

**(Brief summary of the job, covering the main responsibilities, the framework within which the job has to operate and the main contribution to the organization.)**

The Power Plant Engineer supports the operation and maintenance of a large heating and cooling plant. Position must be able to function independently with a minimum of supervision on a shift. Plant equipment operated and maintained includes high pressure boilers, a heating plant, compressed air, refrigeration units, reverse osmosis systems and associated equipment.

Position is required to operate an electronic building management control system that manages much of the equipment as well as monitor the Strathcona County Health Centre.

## Responsibilities and Activities

**(Purpose of the job can be broken down in different responsibilities and end results. Each end result shows what the job is accountable for, within what framework, and what the added value is.)**

- 1. Operate and maintain a number of high pressure boilers, their auxiliaries and building environment systems.**  
Read, interpret and adjust meters and gauges.

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Test and control chemical content of heating and cooling systems.

Respond to complaints related to air quality in user areas through the use of the building management control system.

Check operation of air handling systems, emergency generator sets and related equipment. Perform scheduled visual inspections.

Perform regular building checks by computer and in person.

Perform scheduled preventative maintenance activities.

Prepare reports, and maintain records and logs.

## 2. Other related responsibilities.

Assist and work with tradesmen.

Maintain applicable areas of the preventive maintenance program.

Perform minor plumbing.

Oversee contractor work.

Provide security over physical assets and infrastructure.

## Scope

**(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)**

Position is one of several that operate and maintain building system equipment in a large research laboratory. Equipment is diverse and includes air, heat and cooling systems, water treatment systems, and low and high pressure boilers. Due to the nature of the facility, position requires a well rounded knowledge of a wide range of processes.

## Contacts

**(Main contacts of this position and the purpose of those contacts.)**

Position has contact with building occupants to hear concerns. Required to take instruction and provide updates to superiors.

Position will monitor the work of contractors.

## Knowledge, Skills and Abilities

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**(Most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others not only diplomas and degrees. Specific training if it is an occupational certification/registration required for the job.)**

- Requires a working knowledge of boiler operation, HVAC (Heating, Ventilation and Air Control) systems, refrigeration systems, and other related physical plant systems.
- Must have proficiency with tools and testing equipment, and able to troubleshoot and repair control systems.
- Requires a 3rd Class Power Plant Engineer Certificate.

## Organization

**(Working titles of positions reporting directly to this position.)**

Position has no supervisory responsibilities.

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## Subsidiary 4 Benchmark Evaluation - 043PP16

### Identification Section

<b>Working Title:</b>	Power Plant Engineer - 4th Class
<b>Department:</b>	Infrastructure
<b>Division, Branch/Unit:</b>	Property Management North, Northeast Area, Vegreville
<b>Reports To:</b>	Facilities Manager
<b>Levels to D.M.:</b>	5
<b>Job Description:</b>	043PP16
<b>Minimum Recruitment Standard:</b>	See the <a href="#">Minimum Recruitment Standards</a> for Power Plant Engineer
<b>Job Code:</b>	043PP - Power Plant Engineer 4th Class

### Comments on Role

Position is one of three 4th Class Power Plant Engineers that operate and maintain the building equipment for a large research institution. Size and pressure of boilers require 4th Class certification to operate. The equipment operated and maintained is quite diverse. Position receives verbal instructions and also executes documented instructions found in the Site Maintenance Manuals.

### Evaluation

Knowledge	Creativity / Problem Solving	Responsibility	Total Job Points
D-II 115	25% 29	R1 33	177

## Comments on Evaluation

### **Knowledge:**

#### **Professional/Content Knowledge:**

- Position requires some specialized knowledge obtained through a combination of course work and experience through a 4th Class Power Engineering Certificate. The role requires noticeably less depth and preparation than most mandatory trades, resulting in the D- rating.

#### **Complexity and Diversity:**

- Position performs activities requiring planning and coordination skills in the operation and maintenance of diverse building system equipment.

#### **Human Relations Skill:**

- Position requires the ability to clearly receive general and technical instructions, and to clearly communicate issues or problems during information exchange.

#### **Creativity/Problem Solving:**

With readily available assistance from the team leader, the position works with diverse equipment and is guided by established guidelines and standards. There is latitude when applying judgement in determining the best course of action in different situations encountered.

#### **Responsibility:**

Position focus is service delivery, ensuring that equipment is operated and maintained satisfactorily.

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### **Last Reviewed:**

Last Review / Update: 2016-03-11

# Subsidiary 4 Benchmark Job Description - 043PP16

## Identification Section

<b>Working Title:</b>	Power Plant Engineer - 4th Class
<b>Department:</b>	Infrastructure
<b>Division, Branch/Unit:</b>	Property Management North, Northeast Area, Vegreville
<b>Reports To:</b>	Facilities Manager
<b>Levels to D.M.:</b>	5

## Purpose

**(Brief summary of the job, covering the main responsibilities, the framework within which the job has to operate and the main contribution to the organization.)**

The Power Plant Engineer supports the operation and maintenance of a large heating and cooling plant. Equipment includes ten low pressure and one high pressure water tube boilers, one centrifugal chillier, cooling tower and ancillary equipment, three diesel engine operated emergency power generators, one natural gas fired Cogeneration plant, heat exchangers, air handling units, two water softeners and other auxiliary equipment. Position is required to operate a building management control system that manages much of the equipment. This position is also required to operate an automated card access system and computerized maintenance management system.

Additional equipment operated and maintained by this position includes a reverse osmosis/de-mineralized water treatment system and a chemical waste water treatment plant.

## Responsibilities and Activities

**(Purpose of the job can be broken down in different responsibilities and end results. Each end result shows what the job is accountable for, within what framework, and what the added value is.)**

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**1. Operate and maintain the heating and cooling components and auxiliary equipment.**

Read, interpret and adjust meters and gauges.

Test and control chemical content of heating and cooling systems.

Respond to complaints related to air quality in user areas through the use of the building management control system.

Check operation of air handling systems, emergency generator sets and related equipment. Perform scheduled visual inspections and perform quality assurance checks.

Perform scheduled preventative maintenance activities.

Prepare reports and maintain records.

**2. Operate and maintain a process water treatment plant.**

Read, interpret and adjust meters and gauges to make sure equipment and processes are working properly.

Take water samples and make process adjustments.

Make necessary repairs and perform scheduled maintenance activities.

**3. Operate and maintain a waste water treatment plant.**

Monitor processes and make necessary adjustments such as adding chemicals.

Take and analyze samples.

Make necessary repairs and perform scheduled maintenance activities.

## Scope

**(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)**

Position is one of several that operate and maintain building system equipment in a large research facility. Equipment is diverse and includes air, heat and cooling systems, water and waste water treatment systems, diesel powered emergency power generators and operation of a 850KW natural Gas Cogeneration plant.

## Contacts

**(Main contacts of this position and the purpose of those contacts.)**

Position has contact with building occupants to monitor building conditions. As part of the maintenance team is expected to communicate with the team leader and keep them informed about maintenance issues.

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## Knowledge, Skills and Abilities

**(Most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others not only diplomas and degrees. Specific training if it is an occupational certification/registration required for the job.)**

- Requires the ability to work with automated building management control systems and a working knowledge of operation and maintenance of heating and cooling systems.
- Must be able to operate and maintain RO water recycling system and chemical waste water treatment systems.
- Essential requirements include a 4th Class Power Engineering Certificate a Building Operator A Certificate is an asset.

## Organization

**(Working titles of positions reporting directly to this position.)**

Position has no supervisory responsibilities.

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