

## STEAM AND POWER PLANT SERIES

<b>Code No.</b>	<b>Class Title</b>	<b>Occ. Area</b>	<b>Work Area</b>	<b>Prob. Period</b>	<b>Effective Date</b>	<b>Last Action</b>
4990	Steam and Power Plant I	11	041	6 mo	7/1/13	Rev.
4991	Steam and Power Plant II	11	041	6 mo	7/1/13	Rev.
4992	Steam and Power Plant III	11	041	6 mo	7/1/13	Rev.
4993	Steam and Power Plant IV	11	041	12 mo	7/1/13	Rev.
4994	Steam and Power Plant V	11	041	12 mo	7/1/13	Rev.

### **Promotional Line: 173**

Employees in positions assigned to this series work in a power plants that provide heating and cooling, chilled water and electricity, including cogeneration plants. These plants use coal, natural gas, fuel oil or other fuel, and water. Power plant employees are responsible for the operation and maintenance of equipment that produces steam and electricity, as well as equipment for pollution-control systems and air conditioning. They may also work with general power plant equipment building ventilation and air-conditioning equipment, pumps, compressors, and other building mechanical equipment

Operators in this series may assist in the operation of, or operate, plant equipment (such as boilers, turbines, pollution-control equipment, water-treatment equipment and associated equipment). They are also responsible for reading gauges, maintaining logs, and cleaning equipment.

### **Level I: Steam and Power Plant I**

**4990**

Employees at this level assist in the operation, maintenance, and repair of steam and power plants and/or related mechanical equipment in buildings throughout campus. These individuals study and learn approved methods for operating steam and power plant/related mechanical equipment. They work under direct supervision from higher-level operators.

A Steam and Power Plant I typically –

1. assists in the operation of plant equipment, pollution-control systems, water-treatment laboratories, etc.
2. assists employees at higher levels of this series in manipulating valves and levers to control the flow of fuel and water
3. reads meters and records data
4. checks, cleans, dusts, maintains, and lubricates plant equipment including pumps, fans, compressors, condensers, feedwater heaters, filters and similar equipment
5. removes by-products from pollution-control devices (such as ash from electrostatic precipitator and waste from the scrubber operation)
6. performs unskilled labor incidental to, and necessary for, the operation of mechanical equipment, such as cleaning and wiping off equipment, sweeping and mopping floors, and cleaning pipes

7. cleans boilers, coal tracks and conveyor rooms; cleans and lubricates conveyor equipment; assists in the operation of coal- and ash- handling equipment, including moving coal, ashes, and supplies
8. receives training, observes, studies, and learns approved methods for maintaining and repairing boilers and plant equipment; detects malfunctions and notifies operators of any malfunctions
9. assists in the routine maintenance of mechanical equipment such as the cleaning of boilers, steam producing boilers and condensers, lubrication of equipment and similar functions
10. assists in the routine repair of the plant, boiler, and mechanical equipment (e.g., pumps, compressors, and fans)
11. may detect and report equipment malfunctions
12. works on general upkeep of areas: sweeping, organizing, labeling equipment, wiping down equipment
13. replaces indicator bulbs on control equipment
14. adheres to safety and sanitation requirements
15. performs other related duties as assigned

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**Level II: Steam and Power Plant II****4991**

Employees at this level operate and maintain high pressure boilers and auxiliary equipment needed to provide steam, hot water and heating. They ensure safe work practices and procedures are being followed at all times.

A Steam and Power Plant II typically –

1. starts and stops equipment, checks gauges and logs the boilers, test and treats boiler water with needed chemical; monitors boiler water, supply gas pressure water quality, chemical and fuel levels; makes adjustments to maintain required levels; keeps chemical tanks filled and makes needed adjustments to feed water and chemicals, fixes leaks including making new gaskets as required
2. performs maintenance and preventive maintenance on high pressure boilers and auxiliary equipment; performs boiler safety checks
3. assists and instructs other staff in operation of equipment and safety standards; follows established safety procedures
4. maintains other auxiliary equipment
5. regulates fuel intake, flame, water, steam flow, and draft

6. records data, such as temperature of equipment, hours of operation, fuel consumption, temperature or pressure, water levels, analysis of flue gases
7. monitors and maintains hourly log readings on gauges, maintains daily logs of operation, maintenance, and safety activities meters, thermometers and chart recorders to interpret readings to ensure equipment is operating properly and takes appropriate action if operation is outside of standard protocols
8. maintains and updates Material Safety Data Sheets (MSDS) in a central log
9. adjusts manual controls or overrides automatic controls to bring equipment into recommended or prescribed operating ranges, switch to backup equipment or systems, or to shut down equipment
10. performs duties of the lower-level in this series as required
11. performs all other related duties as assigned by higher-level operators

**Level III: Steam and Power Plant III****4992**

Employees at this level operate power plant equipment and assist in training lower-level employees in the operation of equipment, perform maintenance and repair work and assist higher-level employees in performing major repairs on power plant equipment, operate turbines and switchboards, perform skilled mechanical work in the repair, operation, and maintenance of a cogeneration heating/cooling plant and/or other related mechanical equipment throughout campus. They work under general supervision from a designated supervisor.

A Steam and Power Plant III typically –

1. fires boilers, gas turbines, coal furnaces by hand or with stokers and gas- or oil-fed boilers, plans firing operation to maintain necessary levels to meet the demand for steam
2. controls and maintains plant equipment (e.g., boilers, turbines, generators, reactors, etc.) using control systems or semi-automatic equipment
3. regulates fuel intake, flame, water, steam flow and draft; monitors boiler water, water quality, chemical and fuel levels, and makes adjustments to maintain required levels
4. operates and maintains power plant equipment, building ventilation and air-conditioning equipment, pumps, compressors, and other building mechanical equipment
5. operates and tends plant equipment, engine room equipment, pollution-control systems, coal- and ash-handling equipment, condensers, switch gear, racking and resetting of circuit breakers, water treatment laboratories, turbine generators, and associated equipment
6. starts, stops, and/or adjusts controls/valves on generators, pumping equipment, turbines, feed pumps, air compressors, or other power plant equipment as necessary

7. dusts, cleans, lubricates, repairs, maintains, monitors, and/or inspects equipment, computer terminals, switches, valves, gauges, alarms, safety devices, and meters to detect leaks, malfunctions, and/or operating problems
8. performs maintenance and repair work on a wide variety of power plant equipment and machinery
9. observes and interprets readings on gauges, meters, and charts to ensure that machines and equipment are operating properly and efficiently
10. maintains daily logs of operation, maintenance, and safety activities; takes regulatory action based on readings from charts, meters, and gauges
11. checks pump gauges for accuracy, draws samples, checks pressures, completes chemical test and adjusts systems as needed
12. supervises and trains lower-level employees and other assigned personnel
13. assists employees at higher levels of this series as needed
14. inspects records or log book entries and communicates with plant personnel to assess equipment operating status
15. communicates with systems operators to regulate and coordinate line voltages and transmission loads and frequencies, operates electrical systems and disconnects systems
16. analyzes problems to take appropriate action to ensure the continuous and reliable operation of equipment and systems
17. performs duties of the lower levels in this series as required
18. performs other related duties as assigned

**Level IV: Steam and Power Plant IV****4993**

Employees at this level train and supervise the operating/mechanics crew on an assigned shift and/or operate and maintain all power plant equipment. They work under the direct supervision of a designated supervisor.

A Steam and Power Plant IV typically –

1. coordinates, assigns duties, supervises and may perform the activities and operations of employees at lower levels of this series
2. coordinates and may perform the proper operation of power plant equipment, building ventilation and air-conditioning equipment, pumps, compressors, and other building mechanical equipment
3. assumes responsibility for maintaining proper building temperatures and humidity

4. assigns or performs the maintenance of power plant equipment
5. reads and checks gauges, meters, thermometers, and takes appropriate action if required
6. coordinates, performs, and is responsible for power plant operations and procedures
7. oversees and/or supervises boilers and associated equipment; observes works and monitors gauges, dials, and other indicators to ensure that lower level employees conform to work standards; inspects materials or equipment to detect defects or malfunctions
8. records the details of changes that occurred in operations during assigned shifts in daily log book; maintains hourly log readings
9. supervises the training of employees at lower-levels of this series and other assigned personnel; conducts employee training in equipment operations or work safety procedures, or assigns employee training to experienced workers
10. enforces, implements and adheres to safety and sanitation requirements
11. assists with planning and establishing work schedules, assignments, and sequences to reach goals
12. assigns, supervises, and may perform the cleaning and lubrication of equipment; supervises the caring for, and of cleaning of all power plant and building mechanical equipment
13. coordinates repair work to maintain continuity of service
14. performs major maintenance and repair work as necessary
15. performs duties of the lower-levels in this series as required
16. performs other related duties as assigned

**Level V: Steam and Power Plant V****4994**

Employees at this level assist in the supervision of the operation and maintenance of all power plant equipment and of building mechanical equipment. They work under administrative supervision from a designated administrator.

A Steam and Power Plant IV typically –

1. supervises plant staff, all lower-level employees, and others as assigned
2. directs and assists in the operation of steam and power plant equipment, building, ventilating, and air-conditioning equipment, pumps, compressors, and other building mechanical equipment
3. makes, or supervises, emergency repairs and adjustments
4. oversees the generation and completion of operating and maintenance records/reports

5. coordinates, schedules and assigns necessary work
6. coordinates equipment operation and maintenance for optimum plant performance and efficiency
7. coordinates and implements departmental/plant operational rules, policies, procedures and personnel functions
8. assists in the development and preparation of annual operating and maintenance budgets
9. coordinates, schedules, inspects and assigns inter-departmental tasks and those assigned to contracted work and services, schedules plant-wide or similar inspections
10. performs duties of the lower-levels in this series as required
11. performs other related duties as assigned

MINIMUM ACCEPTABLE QUALIFICATIONS REQUIRED FOR ENTRY INTO:

**Level I: Steam and Power Plant I**

**4990**

CREDENTIALS TO BE VERIFIED BY PLACEMENT OFFICER

1. High School Graduation or equivalent

KNOWLEDGE, SKILLS AND ABILITIES (KSAs)

1. Mechanical Knowledge: knowledge of machines and tools, including their designs, uses, repair, and maintenance; including power plant equipment, steam-generating equipment, and pollution-control devices
2. Ability and willingness to follow both oral and written directions
3. Ability to work with others
4. Problem Sensitivity: ability to tell when something is wrong or likely to go wrong
5. Manual Dexterity: ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects
6. Trunk Strength: ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without fatiguing
7. Computers and Electronics Knowledge: knowledge of systems such as word processing, managing files and records, and other office procedures and terminology
8. Oral Comprehension and Expression Ability: ability to listen and understand information presented by others and to communicate information and ideas so others can understand
9. Ability to work in conditions with wide variation of temperature exposure

**Level II: Steam and Power Plant II****4991**

## CREDENTIALS TO BE VERIFIED BY PLACEMENT OFFICER

1. **One (1) year (12 months)** of experience in a position comparable to the next lower level of the series.
2. Possession of current/valid licenses and certificates, as required by the employing institution.

## KNOWLEDGE, SKILLS AND ABILITIES (KSAs)

1. Mechanical Knowledge: knowledge of machines and tools, including their designs, uses, repair, and maintenance; including power plant equipment, steam-generating equipment, and pollution-control devices
2. Ability and willingness to follow both oral and written directions
3. Ability to work with others
4. Manual Dexterity: ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects
5. Trunk Strength: ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without fatiguing
6. Public and Plant Safety and Security Knowledge: knowledge or relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions
7. Computers and Electronics Knowledge: knowledge of systems such as word processing, managing files and records, and other office procedures and terminology system software
8. Skill in Operation Monitoring: watching gauges, dials, or other indicators to make sure a machine is working properly
9. Oral Comprehension and Expression Ability: ability to listen and understand information presented by others and to communicate information and ideas so others can understand
10. Problem Sensitivity: ability to tell when something is wrong or likely to go wrong

**Level III: Steam and Power Plant III****4992**

## CREDENTIALS TO BE VERIFIED BY PLACEMENT OFFICER

1. **Two (2) years (24 months)** of experience in the maintenance and operation of steam and power plant equipment.
2. **One (1) year (12 months)** of work experience comparable to the next lower level of the series.

3. Possession of current/valid licenses and certificates, as required by the employing institution.

#### KNOWLEDGE, SKILLS AND ABILITIES (KSAs)

1. Mechanical Knowledge: knowledge of machines and tools, including their designs, uses, repair, and maintenance; including power plant equipment, steam-generating equipment, and pollution-control devices
2. Public and Plant Safety and Security Knowledge: knowledge or relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions
3. Broad knowledge of steam and power plant operations
4. Computers and Electronics Knowledge: knowledge of systems such as word processing, managing files and records, other office procedures and terminology, building automation systems and equipment
5. Skill in the Management of Personnel Resources: motivating, developing, and directing people as they work, identifying the best people for the job
6. Problem Sensitivity: ability to tell when something is wrong or likely to go wrong

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#### **Level IV: Steam and Power Plant IV**

**4993**

#### CREDENTIALS TO BE VERIFIED BY PLACEMENT OFFICER

1. **Four (4) years (48 months)** of experience in the maintenance and operation of steam and power plant equipment.
2. **One (1) year (12 months)** of experience comparable to the next lower-level of the series.
3. Possession of current/valid licenses and certificates, as required by the employing institution.

#### KNOWLEDGE, SKILLS AND ABILITIES (KSAs)

1. Mechanical Knowledge: knowledge of machines and tools, including their designs, uses, repair, and maintenance; including power plant equipment, steam-generating equipment, and pollution-control devices
2. Public and Plant Safety and Security Knowledge: knowledge or relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions
3. Broad knowledge of steam and power plant operations
4. Computers and Electronics Knowledge: knowledge of systems such as word processing, managing files and records, and other office procedures and terminology



5. Skill in the Management of Personnel Resources: motivating, developing, and directing people as they work, identifying the best people for the job
6. Problem Sensitivity: ability to tell when something is wrong or likely to go wrong

**Level V: Steam and Power Plant V****4994**

## CREDENTIALS TO BE VERIFIED BY PLACEMENT OFFICER

1. Bachelor's degree in engineering, business administration or a closely related field  
**OR**  
**Five (5) years (60 months)** of relevant experience in a utility plant environment.
2. **Two (2) years (24 months)** in a supervisory role comparable to that described for the next lower-level in this series.
3. Possession of current/valid licenses and certificates, as required by the employing institution.

## KNOWLEDGE, SKILLS AND ABILITIES (KSAs)

1. Mechanical Knowledge: knowledge of machines and tools, including their designs, uses, repair, and maintenance; including power plant equipment, steam-generating equipment, and pollution-control devices
2. Public and Plant Safety and Security Knowledge: knowledge or relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions
3. Broad knowledge of steam and power plant operations
4. Computers and Electronics Knowledge: knowledge of systems such as word processing, managing files and records, and other office procedures and terminology
5. Skill in the Management of Personnel Resources: motivating, developing, and directing people as they work, identifying the best people for the job
6. Problem Sensitivity: ability to tell when something is wrong or likely to go wrong
7. Skill in the Management of Personnel Resources: motivating, developing, and directing people as they work, identifying the best people for the job

*\*\*\* As designated in the Status Notice, the classifications listed for each new title are to be used as a general guide. A final review of the job description will dictate the actual assignment of classification level.*