

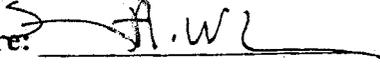
## Evaluation of Position Description

Labor Category/FLSA: Nonexempt

       Current Position Description  
  X   Proposed Position Description

Date Prepared:   07/03/03  

Approving Official: Name: Sheryl A. Wheeler

Signature: 

Title: HR Specialist

Position Title/Series/Grade: Boiler Plan Operator, WG-5402-11

ORGANIZATION: Division of Property Management

Reference: OPM JGS Boiler Plant Operator, WG-5402, Mar 91; Heating and Boiler Plant Equipment Mechanic Series, WG-5309, 11/92.

**TITLE AND SERIES DETERMINATION:** This position includes duties which involve the operation and operational maintenance of single and multiple fuel water or fire tube boilers and associated auxiliary and pollution control equipment. These boilers operate at various pressures and temperatures in automatic or manual modes to produce steam or high temperature hot water, to operate industrial and institutional facilities and equipment to generate electricity. The Central Utilities operates and maintains: Five industrial high pressure steam boilers, each producing 150,00 - 200, 000 pounds of steam per hour at 165 psi, for a total steam plant capacity of 800,000 pounds of steam per hour: sixteen electrically driven industrial centrifugal refrigeration units of different manufactures utilizing refrigerant 12, 22, or 1392 in sizes from 3000 to 5000 ton capacity each, for a total plant capacity of 68,000 tons and three centrifugal air compressors, with a capacity of 1500 - 3000 CFM each. This industrial equipment is used to supply steam, chilled water and compressed air utility services to over 50 buildings housing a variety of research and medical facilities, a 470 bed research hospital and other administrative buildings located on the NIH reservation. Based on this review, the title and series, Boiler Plant Operator WG-5402 is the appropriate title and series for this position.

**GRADE DETERMINATION:** Subject position serve as a full journeyman level in operating, maintaining and repairing boiler, refrigeration, compressed air and their associated auxiliary equipment. The incumbent operates and maintains all equipment related to boiler, refrigeration and compressed air operations. Starts, operates, adjusts, stops, maintains, and performs various operational repairs all of the sixteen (16) large electrically driven refrigeration units and associated auxiliary and pollution control equipment. Through the use of manual, automatic, or microprocessor controls or control systems, subject position monitors, adjusts, and controls all phases of boiler plant operations. Position assists in the organized preventive maintenance and

repair activities. Subject position may be assigned shift responsibility: is responsible for taking appropriate action in the event of a breakdown or malfunction of equipment; determines whether to shut down a boiler and decides whether the equipment still in operation is sufficient; relays instructions to the following shift including problems encountered and action taken. Above duties exceed the WG-10 level of subject standard and per referenced standard, these duties warrant an additional grade; thus the position is graded at the WG-11 level.

**CONCLUSION:** In accordance with the classification practices and titling prescribed in the WG-5402 Series standard. The proper classification for subject job is therefore determined to be Boiler Plant Operator, WG-5402-11.

## Boiler Plant Operator, WG - 5402-11

### **Introduction:**

The Division of Property Management (DPM) serves all of the NIH Community by providing support for renovations, new construction and maintenance of existing facilities, utilities and grounds. The Division provides professional leadership for the engineering programs of the National Institutes of Health (NIH). The scope of DPM operations is such that the effectiveness with which they are carried out has a major and direct effect on the worldwide biomedical research programs of the NIH. In addition to the main facilities at the Bethesda Campus and in Poolesville, MD, NIH has facilities at Research Triangle Park, North Carolina, Rocky Mountain Laboratory in Montana and the Gerontology Research Center in Baltimore, MD.

This position is organizationally located within the DPM in one or more of the subordinate organizational components responsible for the provision of operations and maintenance of NIH facilities. The position is multi-disciplinary and requires the incumbent to be multi-skilled and flexible in the types and complexity of work performed. The position requires that the incumbent be able to work independently and take the initiative to complete the work assigned with a minimum of direct supervision regardless of the nature of the work thus requiring that specific trade skills be shared between staff members.

The Central Utilities operates and maintains: Five industrial high pressure steam boilers, each producing 150,000 - 200,000 pounds of steam per hour at 165 psi, for a total steam plant capacity of 800,000 pounds of steam per hour; sixteen electrically driven industrial centrifugal refrigeration units of different manufactures utilizing refrigerant 12, 22, or 1392 in sizes from 3000 to 5000 ton capacity each, for a total plant capacity of 68,000 tons and three centrifugal air compressors, with a capacity of 1500 - 3000 CFM each. This industrial equipment is used to supply steam, chilled water and compressed air utility services to over 50 buildings housing a variety of research and medical facilities, a 470 bed research hospital and other administrative buildings located on the NIH reservation.

### **Duties and Responsibilities**

Incumbents serve at the full journeyman level in operating, maintaining and repairing boiler, refrigeration, compressed air and their associated auxiliary equipment. Incumbent work on a rotating shift. Incumbents rotate within shifts and among shifts, operating and maintaining all equipment related to boiler, refrigeration and compressed air operations.

Starts, stops (mechanically or manually), adjusts, maintains and repairs any or all of the boilers and auxiliary equipment which includes: forced and induced draft fans, feedwater pumps, condensate pumps, high pressure water pumps, deaerating equipment, etc. Observes and controls at the central control board. Regularly observes and notes readings draft and flue gauges, steam production recorder, pressure gauges, boiler water level indicators, feed water flow and pressure,

and flame detectors. Adjusts control to assure proper steam and oil mixture on burners to achieve maximum combustion efficiency in compliance with air pollution laws and produce steam required to meet load demands.

Assists in the organized preventive maintenance and repair activities which includes patching brickwork in boilers, turbining tubes, cleaning and inspecting boiler drums, dismantling pumps, turbines, valves, steam traps, steam lines, water lines, replacing bearings and seals and performing shaft alignments on various equipment.

Starts, stops, operates, adjusts, maintains and repairs all of the sixteen (16) large electrically driven refrigeration units and associated auxiliary equipment including cooling towers, pumps, steam reducing stations etc. Assures the proper chilled water temperature for out going and return water at maximum plant operation or proper chilled water supply. Troubleshoots operational problems by locating and checking various elements such as those which control low and high side pressure; the temperature of the refrigeration units; the temperature of the liquid and suction lines; and the running time of the various mechanism.

Operates and maintains three central 1500 - 3000 CFM air compressors, changes oil and filters when necessary. Tests two 300,000 gallon water softeners and regenerates and adjusts chemicals and water flow when necessary to assure efficiency. Receives fuel oil into main tanks (two tanks of 529,000 gallons each) and transfer oil to day tanks and operates necessary equipment to accomplish this. Verifies that proper amount of oil is delivered. Operates sump pump and heating and ventilating equipment in the power plant.

Assists in the organized preventive maintenance and repair activities which includes patching brickwork in boilers, turbining tubes, cleaning and inspecting boiler drums, dismantling pumps, turbines, valves, steam traps, steam lines, water lines, and performing shaft alignments on various equipment. Repairs all mechanical equipment as necessary, probability of refrigerant and steam leaks by visual and audible inspections; by applying prescribed test procedures and equipment and by exploration of the probable reasons for equipment failure. Uses all tools, auxiliary equipment, boilers, refrigeration equipment, air compressors, etc. Maintains a neat, clean, and orderly work area.

Assures that established plant procedures are followed and that all safety precautions are observed. Conducts a complete physical check of plant on a regular basis during shift where all auxiliary equipment inspected and checked. Remains constantly on the alert to detect malfunctioning equipment and takes necessary steps to check on incinerator equipment and starts and stops as necessary. Operates sump pump and heating and ventilating equipment in the power plant.

Directs, trains and instructs lower grade employees. Conforms to all safety rules of the plant and is familiar with all casualty control drills and the PPS Instruction Manual.

Performs other related duties as assigned.

## Skills and Knowledge

Understands the principles of high pressure steam generation including heat of evaporation and condensation, heat transfer, conduction, radiation, convection, etc. Has the knowledge of combustion components CO, CO<sub>2</sub>, H<sub>2</sub>O, sulphur, etc., and the proper firing of boilers to get maximum combustion efficiency with minimum air pollution. Has the knowledge of method of analysis of stack gases, boiler efficiency measure which should be taken when CO, CO<sub>2</sub>, are out of proper proportions.

## Other Significant Factor

Physical Demands - Frequently hurries to his station during times of emergencies to avoid (1) possible damage to equipment, (2) excessive smoke or (3) utility outage. May have as little as 30 seconds to solve emergency situations before equipment automatically stops. Uses hearing, eyes, sense of smell and feel. Climbs ladders, crawls, bends, stoops, crouches, lifts up to 100 pounds, etc. Prolonged standing, walking, on concrete floors, climbing stairways and ladders. Light to moderate effort in turning valves and operating controls. Occasional stacking and moving machinery parts, hoods, etc., in dismantling, inspection, etc.

Working Conditions - Normally work is performed inside plant, but incumbent may frequently go outside during inclement weather. Is exposed to the hazards of working around running machinery, including exposure to extreme temperature, noise, boiler explosions, steam leaks, soot, scalding water, hot oil, burns from hot surfaces, and toxic amounts of gas, fumes, and odors. Working environment is not air conditioned during the heat of summer when temperatures are aggravated by heat derived from the boilers.

Incumbent may be assigned as Acting BPO Shift Head during scheduled or emergency leave of the BPO Leader.