UNIVERSITY OF WISCONSIN PARKSIDE

B. Job Title: Power Plant Operator-Senior

C. Is this Position Hourly or Salaried? Hourly

D. Shift & Hours of Position: Primarily 3rd (11:00 PM – 7:00 AM) shift. Occasional 1st (7:00 AM – 3:00 PM) or 2nd (3:00 PM – 11:00 PM) shift.

E. Number of Subordinates (if applicable): 0

F. List of Essential Job Functions, Knowledge, Abilities, and Skills:
This is a responsible position in a large and highly complex Heating & Chilling Plant. General supervision is received from the Power Plant Superintendent. On shift, the Power Plant Operator – Senior is solely responsible for the following: total operation and maintenance of the entire plant in a safe and efficient manner, assistance in emergency situations, emergency repairs, and performance of any other duties associated with the operation of a complex heating and chilling plant.

20% A. Operate boilers and boiler controls to maintain proper steam pressure, water levels, and other operating parameters. (NOTE: The Heating & Chilling Plant provides heating to 10 campus buildings, which are inter-connected by a series of underground tunnels and conduits.)

- A1. Light off, operate, and shut down high-pressure watertube and firetube boilers on gas and oil.
- A2. Perform boiler fuel changes from gas to oil and oil to gas.
- A3. Monitor control systems, observe changes, and make any necessary adjustments to maintain the most safe and efficient operation.
- A4. Operate combustion analysis equipment.

20% B. Perform operational duties, as required.

- B1. Exercise sound judgment as to when boilers, chillers, and auxiliary equipment should be used.
- B2. Complete daily preventative maintenance, and duties such as: checking oil levels, soot blowing, tank blow downs, instrument calibration, packing adjustment, etc.
- B3. Monitor the MetaSys™ (computerized energy management system) computer. Start and stop campus systems as needed. Contact appropriate personnel as needed.
- B4. Analyze and assess trouble situations. Determine when emergencies exist and take immediate steps to resolve.
- B5. Exercise the authority to call repair personnel, as necessary.
- B6. Establish communication with preceding and succeeding shifts to discuss problems in English language to assure a smooth transition between shifts.
- B7. Understand language and procedures in operating computers, and computer-associated / computer-controlled equipment.

20% C. Maintenance of Heating & Chilling Plant equipment.

- C1. Perform preventative maintenance of all plant equipment. Inspect equipment, record and analyze data, take appropriate preventative, predictive, and corrective action.
- C2. Disassemble, inspect, replace defective parts and reassemble machinery such as compressors, motors, pumps, mechanical controllers, etc.
- C3. Packing of pumps and valves.
- C4. Installation and repair of piping systems.
- C5. Inspection, repair, removal and replacement of boiler tiles, refractory and insulation. Clean boiler firesides and watersides.
- C6. Turbining of boiler tubes.
- C7. Alignment of pump and driver shafts.
- C8. Inspect, repair or replace equipment parts such as, but not limited to, bearings, seals, belts, hoses, valves, impellers, wear rings, filters, diaphragms, gaskets, piping / fittings, etc.
- C9. Remove, repair or replace insulation.
- C10. Paint equipment, as required.
- C11. Change oil and grease, and/or lubricate equipment, as required.
- C12. Erect and dismantle scaffolding.
- C13. Fabricate safety guards and shields.
- C14. Check and repair steam traps.
- C15. Inspect and clean cooling tower and sump.

10% D. Start, operate, and shut down auxiliary equipment, such as, but not limited to, air compressors, air dryers, diesel-driven electrical generator, centrifugal and positive-displacement pumps, gas systems, oil systems, pneumatic systems, hydraulic systems, softeners, dealkalizers, electrical switchgear, etc.

- D1. Monitor auxiliary equipment and make operating adjustments as conditions change.

10% E. Operate water chillers to maintain proper cooling and dehumidification. (NOTE: The Heating & Chilling Plant provides cooling to 9 campus buildings, which are inter-connected by a series of underground tunnels and conduits.)

- E1. Start, operate, and shut down water chillers and associated equipment.
- E1. Monitor pressure gauges, thermometers, and chiller control systems.
- E2. Adjust chiller instrumentation to meet campus demand as conditions change.

10% F. Miscellaneous Tasks and Responsibilities

- F1. Adhere to plant policies and procedures.
- F2. Operate Heating & Chilling Plant computers; input and retrieve data, and produce & understand plant reports, as required.
- F3. Perform janitorial duties, as assigned.
- F4. Complete assigned equipment cleaning.
- F5. Maintain good public relations.
- F6. Take phone messages and appropriate action on them.
- F7. Leave clear and concise written messages in English language.
- F8. Enter notation in English language of irregular operations, electrical outages, problems, etc. in operations logbook.
- F9. Respond to fire and security alarms and take appropriate action.
- F10. Respond with appropriate and timely action during power outages. Switch from normal power to emergency power and back, using established procedures.
- F11. Assist other Power Plant Operator – Seniors, as required.

5% G. Perform boiler water, chilled water, tower water, condensate, feed water, softened water, and dealkalized water testing and analysis.

G1. Collect samples of boiler water, chilled water, tower water, condensate, feed water, softened water, and dealkalized water.

G2. Using established methods, test water for corrosion potential, pH, bacterial and algae growth, chemical residuals, etc.

G3. Select treatment chemicals, treatment chemical dosages, and blowdowns to maintain desired water chemistry.

G4. Utilize personal protective equipment (PPE) and proper safety practices in operating chemical treatment systems and handling treatment chemicals.

5% H. Maintenance of controls.

H1. Troubleshoot and replace electrical controls and relays.

H2. Calibrate gauges and thermometers.

H3. Service, calibrate, and blow down transmitters.

H4. Calibrate controllers to maintain maximum efficiency.

H5. Calibrate O^2 sensors.

H6. Change O^2 sensors, filters and traps on combustion analyzer.

H7. Adjust liquid level controllers.

H8. Troubleshoot, calibrate, and replace, as necessary: solid-state circuit boards, signal isolators, solenoids, switches, actuators, regulators, recorders, surge suppressors, totalizers, sensors, indicators, meters, monitors, displays, amplifiers, modules, signal converters, terminals, power conditioners, orifice plates, etc

G. List of Marginal Job Functions:

- General housekeeping and office duties.
- Minor snow removal.
- Miscellaneous tasks, as required.

H. Responsible for Money, University funds, or accounts which hold financial information? Yes or No

No

I. Ergonomic Requirements: This position requires performance of duties under adverse conditions, such as working below grade, in extreme hot/cold or confined spaces, and from elevated or uneven surfaces. The ability to climb ladders, traverse planks or walkways, squat, kneel, bend, stoop, crawl, twist, lay flat, lift heavy objects (up to 50 lbs) repeatedly, and adequate balance to accomplish the noted tasks is required. The ability to tolerate airborne dust and a dirty work environment is required. The ability and flexibility to access boiler watersides / firesides and tanks / vessels through restricted openings as small as 11" x 15" elliptically is required. The ability and mobility to move about the plant and perform complex procedures under a time constraint is required.

J. Qualifications:

Required:

- Ability to communicate verbally, reading and in writing using the English language to give, receive, read, and write detailed instructions.
- Interpersonal skills necessary to interact effectively with the public, coworkers, and other University workers.
- Sufficient long-term memory to be able to recall and apply policies, procedures and regulations. Sufficient short-term memory to be able to return to and accurately complete tasks after interruptions.
- Knowledge of emergency Heating & Chilling Plant procedures and reactions.
- Ability to communicate emergency situations with clarity in the English language.
- Ability to attend work on a regular basis except for leave provided by the labor contract or law.
- Ability to learn and perform all essential job functions safely while on shift, with little direct supervision after training.
- Sufficient manual dexterity to operate office equipment, hand tools, machinery, and maintenance equipment.
- Ability to read, interpret and understand equipment manuals and blueprints.
- Possess a high degree of mechanical aptitude.
- Ability to deal with stressful situations.
- Initiative to work productively for sustained periods without supervision.
- Currently possess, or obtain before completion of probation, and maintain ASOPE Third Class Power Plant Operating Engineer License, or approved equivalent.

Preferences:

K. Equipment to be used on the job:

(By each piece of equipment, put an "F" for frequent use, an "O" for occasional use, or an "R" for rare use.)

1. Tools: (power or manual tools)

Dial indicator-O, Oxyacetylene torch-O, Electric drill-F, Hydraulic press, hoist & jack-O, Drill sharpener-R, Taps & dies-F, Vernier calipers-O, Packing extractors-O, Brooms & brushes-F, Dead weight tester-O, Paint rollers & brushes-O.

2. Large Machinery: (includes vehicles)

Office vehicle-R, Drill Press-O, Surface grinder-R, Horizontal milling machine-R.

3. Electrical Equipment: (i.e.: floor buffer, includes office equipment)

Sawzall-O, Pipe cutter & threader-F, Bench grinder-F, Tube Cleaner (boiler & chiller)-O, Vacuum cleaner-F, Floor buffer-O, Computer-F.

4. Chemicals: (includes cleaning supplies, lab chemicals, hazardous waste)

glass cleaner, white out, general surface cleaner, lubricating oils & greases, fuel oils, natural gas, LPG (propane), boiler & chilled water treatment chemicals, water testing reagents, boiler refractory patching materials, ceramic fiber blanket, paints & thinners, penetrants, anti-seize, solder, fluxes, oil-dry, teflon joint sealants, degreasers, mineral spirits, industrial liquid detergents.

L. Additional Information:

M. Organizational Chart - attached

KNOWLEDGES AND SKILLS:

1. Ability to communicate clearly, both verbally and in writing using the English language.
2. Ability to read, interpret and understand equipment manuals and blueprints.
3. Knowledge of Heating & Chilling Plant equipment and system operations.
4. Knowledge of emergency Heating & Chilling Plant procedures and reactions.
5. Knowledge and proper procedures or methods to perform, but not limited to, the following tasks: gasket cutting; soldering; packing cutting; pipe cutting & threading; brazing; painting; welding; sweeping, mopping & vacuuming.
6. Ability to learn and perform all essential job functions safely while on shift (either alone or independently), and with little direct supervision after training.
7. Must possess sufficient manual dexterity to operate office equipment, hand tools, machinery and maintenance equipment.
8. Must demonstrate the ability to perform duties under the following adverse conditions: working below grade; in extreme hot/cold or confined spaces; from elevated or uneven surfaces; climb ladders; traverse planks or walkways; squat; kneel; bend; stoop; crawl; twist; lay flat; lift heavy objects (up to 50 lbs) repeatedly; tolerate airborne dust and a dirty work environment; ability and flexibility to access boiler watersides / firesides and tanks / vessels through restricted openings as small as 11" x 15" elliptically; (adequate balance to accomplish the listed tasks is required)
9. Knowledge of basic safety rules and signs, including Material Safety Data Sheets (MSDS), confined space safety, hoisting & rigging, and lockout / tagout (LOTO) procedures.
10. Demonstrate the ability to follow established procedures and safely operate equipment using those procedures.
11. Demonstrate good decision-making skills.
12. Knowledge of mechanical theory.
13. Demonstrate mechanical aptitude.
14. Knowledge of water chemistry and control.
15. Ability to perform preventative, predictive, and corrective maintenance, and make repairs / adjustments / replacements to components, equipment, and systems.
16. Demonstrate the ability to work 3rd shift, and to work random / successive shifts and overtime.
17. Demonstrate the ability and mobility to perform established complex operational procedures under time constraint.
18. Ability to communicate emergency situations with clarity in English language.