

STEAM PLANT ASSISTANT (5622)
Task List - 2021

All Steam Plant Assistants work for the Department of Water and Power at one of the City's four generating stations (Haynes, Harbor, Scattergood, or Valley). Steam Plant Assistants will perform one or may perform all of three major types of jobs in the class: Maintenance Trainee, Operations Trainee, or Controls Trainee.

Steam Plant Assistants in all three job types work in a training capacity for a maximum period of four years. They are required to participate in training during this time. This training entails:

1. A nine-day evaluation course before Steam Plant Assistants are assigned to their work locations. Successful completion of this part of the training is mandatory.
2. Participation in home study courses with periodic quizzes, midterms and final examinations administered by the training office in each station, who closely supervises the trainees' progress.
3. Intense on-the-job training in the operation and maintenance of generating station equipment, controls, and control systems.

Promotion takes place according to internal criteria of the Department of Water and Power.

Steam Plant Assistants initially work under close supervision; as soon as they gain proficiency at their assigned tasks, they are expected to perform routine or less critical tasks independently, under general directions.

Although the tasks performed by incumbents in the three Steam Plant Assistant job types generally differ, a number of tasks are performed by all three types.

GENERAL TASKS

1. Receives on-the-job instruction in instrument, operations or maintenance work, and concurrently, on their own time, participates in a home study course to acquire sufficient proficiency in all phases of operations, maintenance or control work to qualify as a Plant Equipment Operator, Assistant Maintenance Mechanic, or Controls Mechanic.
2. Monitors indicators for equipment malfunction, such as indications of excessive temperatures and pressures, noise change, inadequate lubrication, leaks and other malfunctioning of equipment or components, and reports improper operation of mechanical and electrical equipment.
3. As required, drives vehicles, forklift and other power-operated hoisting devices.

4. Keeps electrical and mechanical equipment, adjacent areas and work areas clean; for example, cleans out clogged drain lines, empties oil-drip pans, and cleans up oil spills to prevent accidents.

Tasks Common to Maintenance Trainees and Operations Trainees

5. Assists in performing maintenance and repair work as required during shutdowns, emergencies, and scheduled maintenance.
6. Checks oil levels and lubricates machinery, auxiliary machinery, and electrical and mechanical equipment.

Tasks Performed by Controls Trainees

Controls Trainees participate in a learning capacity in the work of Instrument Mechanics and assist in servicing steam plant equipment by calibrating, cleaning, checking, lubricating, inspecting, adjusting, maintaining, and making minor repairs to computer-controlled and automatic controls, indicating and recording instruments and components, and may assist in the major overhaul of instruments and controls.

7. Assists Plant Controls and Instrument Mechanics in inspecting and determining operating conditions of indicating and recording instruments, automatic and computer-based control equipment, and electrical, electronic, hydraulic, and pneumatic systems.
8. Assists in disassembling, testing, and repairing mechanical, electrical, pneumatic, and hydraulic instruments and components in the instrument and controls shop, using necessary hand and power tools as well as electronic testing equipment, such as volt meters.
9. Upon completion of repairs, assists in calibration and re-installation of instruments and equipment.
10. Prepares and maintains records of instrument and controls inspection, maintenance and repair activities and calibrations, and records instrument and control changes for permanent record-keeping as directed.
11. Cleans instruments and parts and occasionally sorts and stores repaired parts, components, and testing equipment.
12. In cleaning, calibrating, and measuring instruments, uses various gases and liquids when working with combustible gas analyzers, including oxygen, nitrogen oxide, hydrogen, mercury, carbon monoxide, carbon dioxide and acids.

13. Performs simple calibrations of instruments such as level controllers, temperature measuring equipment, transmitters and thermocouples, distillate and fuel gas flow meters, and reports findings.
14. Checks all charts, transmitters and digital recorders in order to ensure proper operation.
15. Assists in the maintenance, calibration, and repair of chemical analysis equipment in order to maintain safe, economic and effective functioning of generating station systems and equipment.

Tasks Performed by Maintenance Trainees

Assists Maintenance Mechanics in maintaining, checking, repairing, lubricating, overhauling and adjusting steam-electric generating equipment, and mechanical auxiliary equipment, such as chemical, water, and oil pumps, hand and motor-operated valves and pumps, compressors, distillate, fuel gas burners, high-pressure boilers, and steam and gas turbines. Maintenance Trainees also assist in maintaining, overhauling, and repairing such equipment as piping, cooling towers, stacks and buildings.

In addition, Maintenance Trainees occasionally assist welders, electricians, machinists, pipefitters, painters, insulation workers, and other journeymen in repairing plant machinery and equipment.

16. Helps to dismantle equipment prior to repair or overhaul.
17. Assists in the construction of prefab platforms and scaffolding.
18. Cleans exterior of equipment by washing down parts and equipment; removing scale and rust; scraping surface prior to painting and installing gaskets; wiping down equipment with cleaning agents; steam cleaning.
19. Keeps work areas clean by sweeping and hosing down, and by wiping up oil spills in order to prevent accidents.
20. Operates hand and portable power tools in the maintenance of equipment, i.e., pneumatic tube-cleaning devices in order to clean condensers and lube oil coolers; sandblasting equipment to clean boiler tubes, condensers, water boxes, and cooler heads; oxy-acetylene cutting and burning equipment and pipe-cutting and threading machines; chipping guns, bench grinders, and drill presses.
21. Assists in boiler and furnace maintenance by cleaning internal boiler furnace parts and water drums; removing old fire bricks and debris from the firebox and replacing elements and seals in air preheaters.
22. Assists in disassembling, cleaning, repairing, and reassembling fuel gas, distillate burners, valves, pumps, and diesel generators.

23. Assists Maintenance Mechanics and other crafts persons in repair work by: dismantling and reassembling auxiliary equipment; obtaining and using necessary tools, equipment, and material; loading, storing, and using paint and rust inhibitors, detergents, and chemicals.

Tasks Performed by Operations Trainees

Operations Trainees assist Station Equipment Operators at a centrally controlled generating station by testing, adjusting, and operating main and auxiliary controls and equipment, including by-pass valves around automatic control regulators, boilers, steam and gas turbine generators, locally operated switchgear, regenerative cycle pumps, motors fans, heat exchangers, and emergency equipment in order to assure that the plant and each unit operate safely and efficiently.

24. Assists in the operation of boilers, turbine generators, and auxiliary equipment by: observing burner flames and firing conditions, air and water valves, vents, drains, pumps, and controls; reading gauges, meters, and thermometers during unit operation.

25. Starts, stops, and secures main and auxiliary equipment as necessary for operation, maintenance and repairs.

26. Reads station transformer meters, instruments, gauges, and charts on machinery and equipment, and records temperatures, pressure, loads, and other readings on the appropriate forms.

27. Assists in unloading bulk chemicals from tank trucks and trailers generating stations by: operating valves, tending lines, recording storage tank gauge readings, and maintaining radio communications.

28. Operates turbine lube oil purification and generator seal oil systems, observes oil levels and operating valves and pumps, and makes the necessary adjustments as directed; and transfers lube oil to various tanks.

29. Operates various valves and pumps to provide gas and distillate to gas turbines.

30. On a regularly scheduled basis, inspects and monitors for proper operation of auxiliary equipment such as: pumps, compressors, fans, heat exchangers, turbine lubricating oil reservoirs and filters, centrifuges, hydrogen seal oil equipment, transformers, inert gas equipment, circulating water and cooling water systems, and operates and checks diesel generators.

31. Monitors instrumentation in the control room and in the field.

32. Assists in maintaining unit water chemistry by sampling and testing water, such as boiler and condensate water and performs routine acidity, alkalinity, and silica tests and inspecting the reverse osmosis system.

33. Assists Steam Plant Operators in the operation and inspection of combustion turbines, heat recovery steam, generators, selective catalytic reduction systems, and steam turbine generators.
34. Inspects station batteries and battery chargers as directed.
35. Maintains operational log to clearly communicate status of equipment and major operating events during the shift.
36. Responds to emergency situations by immediately notifying the control room and taking appropriate action in accordance with the emergency response procedures.