



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

AQUEDUCT PUMP SPECIALIST (MECHANICAL OR ELECTRICAL)

| | | |
|--|--|---|
| Group-Section: Water System Operations – Various | FLSA Status: Non-Exempt Bargaining Unit: AFSCME | Classification: Operations and Maintenance Specialist Salary Grade: 46 Job #: T11 |
|--|--|---|

JOB SUMMARY

Utilizes specialized advanced journey level mechanical or electrical skills, experience and knowledge in the practices, procedures, and methods of maintaining and operating pumping units and associated large-scale water conveyance and distribution systems and infrastructures.

Performs predictive, preventive, and corrective maintenance and installation of large conveyance and distribution pumps and related equipment including, motors, compressors, small to midsize pumps and equipment associated with cooling and lubrication systems, control and measurement equipment, cranes, bridges, gates, penstock, valves, reservoir infrastructure and other large conveyance and distribution equipment and appurtenances.

Performs inspection, maintenance, installation, operations and capacity improvement of high volume pumps, including cranes and associated equipment and systems such as generators and motors, control systems and related processes necessary for optimal distribution system performance and reliability.

SUPERVISION:

Received:

Work is performed with intermittent on-site and at times self-requested supervision. Broad direction is given in terms of operations and maintenance objectives and may require self-initiated work planning, sequencing and coordination of material and tool resources. In the absence of higher supervision, the employee directs O&M forces in their routine assigned work and projects, as well as in emergencies. Ensures all appropriate administrative duties, such as maintenance and operations reporting and timekeeping, are completed accurately and in a timely manner. Limited detailed guidance and advice is available which may result in the modification of work in varied situations. Performance may be measured by the quantity and quality of work and operations and maintenance objectives.

Receives oversight from the Team, Unit, Section, Assistant Group, or Group Manager.

Given:

As lead may exercise technical and/or functional direction over assigned staff.

Provides on the job training and development of O&M Technicians I, II, III and IV through joint tasks, recommending classroom training, hands-on demonstration, and/or assisting in the development and implementation of training programs.

JOB DUTIES

1. Performs maintenance tasks and activities on pumping units, and other key distribution facilities through a variety of specialized skills.

MWD

Metropolitan Water District of Southern California

2. Performs predictive, preventive and corrective maintenance within prescribed standards and limits on complex equipment related to large vertical or similar types of pumps, large diameter valves and pumping/generating plant equipment that are mechanical/electrical in nomenclature, including hydraulic and pneumatic control systems.
3. Utilizes computers and advanced instrumentation to monitor the capabilities, limits, and effectiveness of equipment and processes of key distribution assets and equipment.
4. Utilizes tools associated with fabrication, welding, and machining necessary to create, duplicate and/or replicate parts necessary to install, repair, modify, overhaul and improve a wide variety of equipment and assets within pump/generating plants, and other key conveyance and distribution facilities.
5. Inspects, tests, calibrates, maintains, and improves a variety of complex mechanical/electrical equipment associated with pump operations, such as cooling and lubrication systems, mechanical/electrical control systems, hydraulic and pneumatic controls, cranes and rigging, gear, shaft and drive mechanisms to ensure optimal equipment service to maintain uninterrupted downstream water and power delivery.
6. Performs a variety of predictive maintenance techniques on all types of pumping/generating equipment and supporting systems for flaw detection to maintain and optimize equipment performance and life.
7. Assists with the planning and coordination of scheduled predictive, preventive and corrective as well as unplanned outages, shutdowns or other emergency situations to minimizing equipment downtime or interruption of service.

EMPLOYMENT STANDARDS

MINIMUM QUALIFICATIONS

Education and Experience:

High school diploma or GED in addition to a minimum of 5 years in a journey-level mechanical maintenance position in a pump plant, treatment plant, hydroelectric or conveyance and distribution facility or similar environment.

Specialized advanced journey level experience and knowledge as demonstrated by practical application of techniques and practices specific to the operation, maintenance, and repair of aqueduct infrastructure, pump plant, power generation systems, and related systems and apparatus. Skills necessary include predictive and diagnostic evaluation of complex utility pump and power equipment using analog and digital test as well as computer equipment. Also requires advanced journey-level skills in preventive and corrective maintenance practices related to aqueduct equipment and infrastructure, pump plant and hydroelectric plant maintenance generally obtained through applicable training and experience.

Required Knowledge of: Theories and practices of mechanical/electrical equipment, electricity and electronics, and their application to operation, new installation and maintenance of large-scale mechanical/electrical systems and equipment associated with pumping facilities, power plants and key large-scale water conveyance and distribution systems, skills in the safe and effective operation of cranes and rigging practices, contemporary large-scale pumping, conveyance and distribution systems, including

Job Title: Aqueduct Pump Specialist

Job Code: T11

Revised: 7/22/14

Supersedes: 03/02/09

Adopted: 01/29/08

Page: 2

troubleshooting methods, determination of failure causes, diagnostic analysis through failure mode, and root cause analysis to formulate best maintenance solutions, use of tools and techniques for welding, fabrication and machining to design, set-up and manufacture parts and equipment necessary to repair, modify and improve equipment and other assets as a comprehensive on-site maintenance approach to ensure reliability, and safety practices and regulations for operating mechanical and electrical equipment, low and high voltage systems, hazardous materials, and associated tools and equipment.

Required Skills and Abilities to: Understand and interpret mechanical/electrical engineering data and complex schematic diagrams necessary to implement predictive, preventive, corrective, and improvement activities, interpret complex instructions, manuals, operating and maintenance procedures and specifications related to pump and pumping control, cooling, and lubrication support systems, hydroelectric power systems and equipment as they pertain to the interface with distribution assets such as pumping, water volume, capacity and control, the safe and effective operation of cranes and rigging practices, apply methods, practices, and tools to ensure reliable operations for the movement of water, generation of power, and optimization of equipment demands within established limits and standards, utilize tools and diagnostic equipment to test and monitor equipment condition as well as repair, rebuild/overhaul, install and replace equipment necessary to meet water and electrical generation demand and/or capacity, use and maintain mechanical/electrical tools and equipment normally and traditionally used in pump and hydroelectric plants, reservoirs, and within water and power control facilities, use traditional analog and precision digital instruments to ensure critical alignments as part of diagnostic and predictive maintenance, including infrared cameras and monitors, laser alignment equipment, analog and digital micrometers, calipers, and other tools related to close tolerance analysis of work and apply and guide others in adhering to safety practices and regulations for operating mechanical and electrical equipment, low and high voltage systems, hazardous materials, and associated tools and equipment.

CERTIFICATES, LICENSES and REGISTRATIONS REQUIREMENTS

Employees in this position may be required to obtain and maintain the following:

- Valid Drivers license from state of residency equivalent to a California Class A, B, and/or C with appropriate commercial license endorsements
- Chemical Responder Certification
- Forklift Certification
- Mobile crane Certification
- Require hazmat endorsement
- Respirator Certification
- Welding Certification
- Water treatment Certification
- Water Distribution Certification Grade III
- MWD High Voltage Switching Certification

PHYSICAL DEMANDS/WORK ENVIRONMENT

Expectations of Emergency and Stand-by Service:

Employees in this position may be required to work stand-by and/or off-shift hours to address operational needs and emergencies as required. Employees may be required to work extended periods in remote areas away from the normal reporting location.

Physical Demands:

Heavy tasks may require lifting and carrying items weighing up to 50 pounds, with intermittent need to lift and carry materials and/or equipment weighing up to 100 pounds with assistance. Frequently requires pushing, pulling, turning and positioning parts, assemblies, equipment and tools weighing as much as 100 pounds with assistance. May be required to lift and move heavy items with the assistance of others and with lifting devices such as jacks, hoists and cranes of varied types and capacities. Physical effort includes frequent walking, stooping, bending, reaching, standing, climbing, kneeling and sitting for long periods of time.

Work Environment:

Work is performed indoors and outdoors at large pumping, treatment, hydroelectric or control facilities, or associated with other assets, under all types of conditions including extreme temperatures, remote locations away from the normal reporting locations, open and confined spaces ranging from crawl spaces to sub-structures as well as varied types of terrains. Job tasks frequently require working from heights and functioning from elevated platforms suspended by lifts, hoists, scaffolds and cranes over surfaces from earthen materials to concrete, steel and water. Work frequently is conducted in close proximity to high volume/pressurized water and electrically energized equipment including high voltage systems. The work environment often involves exposure to equipment and tools producing high levels of noise, as well as potentially dangerous materials, chemicals, and machinery that require careful adherence to extensive safety precautions, rules and regulations.