



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

OPERATIONS AND MAINTENANCE TECHNICIAN IV (ELECTRICAL) (JOURNEY)

Group-Section: Water System Operations - Various	FLSA Status: Non-Exempt Bargaining Unit: AFSCME	Classification: Operations and Maintenance Technician Salary Grade: 42 Job #: T03
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JOB SUMMARY

Utilizes journey level electrical skills, experience and knowledge in the practices, procedures, and methods of installing, maintaining, and repairing complex and general water utility and facility electrical systems. Monitors electrical equipment and system for operating condition and performance, including predictive and advanced diagnostic testing; preventive and corrective electric maintenance; improving electrical capacity and upgrading systems to meet treatment, conveyance, and distribution electrical operating demands.

Maintains and improves a variety of electrical components and equipment related to Metropolitan's revenue-generating assets, systems, supporting facilities, and infrastructure including those within treatment and pump plants, conveyance and distribution structures, reservoirs, hydroelectric plants, and right-of-ways. Ensures ongoing reliability and uninterrupted electrical service necessary to convey, store, treat, and distribute water and hydroelectric power effectively to member agencies and other customers.

Activities include maintaining and improving electrical systems in and associated with pumps, turbines, generators, transformers, motors, and associated facilities and processes, including high voltage overhead and underground electrical distribution systems.

SUPERVISION:

Received:

Work is performed with minimal and at times intermittent on-site supervision. Broad direction is given in terms of operations and maintenance objectives that may require self-initiated work planning, sequencing and coordination of material and tool resources. Limited detailed guidance and advice is available which may result in the modification of work in varied situations.

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

Given:

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

Specific attention is given to on the job training and development of O&M Technician I, II, and III-Electrical employees, in order that those employees attain specialized knowledge and skills to advance to O&M Technician IV.

JOB DUTIES

1. Performs journey level electrical maintenance tasks and activities at treatment plants, hydroelectric plants, pumping plants, and other facilities with electrical equipment, to ensure ongoing water and power reliability.

2. Performs a wide variety of journey electrical preventive and corrective maintenance on water related electrical systems within treatment plants, along and within conveyance and distribution system right-of-ways, structures, and facilities. PM and CM activities include electrical work on valves, hydraulic control systems, pumps, turbines, and associated electrical systems; pressure regulating equipment; varied transformers, circuit breakers, meters and panels; key lighting; and power systems necessary for effective water treatment, distribution, and hydroelectric generation.
3. Performs preventive and corrective maintenance on electrical systems necessary for standby power generators and associated control systems.
4. Improves electrical systems associated with construction and maintenance projects as well as building and facility operations including communications and facility comfort and power systems such as heating, cooling, electrical convenience and lighting.
5. Completes complex predictive and preventive, and corrective electrical maintenance associated with large motors, generators, turbines, valves, turnouts, circuit breakers, variable frequency drives, associated with treatment, pump and hydroelectric plants, and the conveyance and distribution system.
6. Utilizes instrumentation to test and monitor the capabilities, limits, and effectiveness of electrical systems, equipment, and processes of power and water systems, to measure the ongoing effectiveness of electrical systems and to assure the quality of maintenance and/or improvements.
7. Inspects, tests, calibrates, and records readings for a variety of electrical systems and equipment to meet reliable equipment life and service expectations, motors, pumps, valve controllers, and chemical feed systems, to assure uninterrupted power and delivery of high quality water.
8. Assists with the planning and coordination of scheduled PDM, PM, and CM, as well as unplanned outages, shutdowns, and other emergency situations, to minimize equipment downtime and interruption of service to member agencies or other customers.

EMPLOYMENT STANDARDS

MINIMUM QUALIFICATIONS

Education and Experience:

High school diploma or GED in addition to a minimum of 6 years in an electrical maintenance position in a pump plant, treatment plant, hydroelectric or conveyance and distribution facility or similar environment.

OR

High school diploma or GED in addition to the attainment of journey level skills through a recognized electrical trade training program.

Journey level experience as demonstrated by practical application of general and advanced techniques and practices specific to the operation, maintenance, and repair of electrical systems in treatment or pump plants, conveyance and distribution, power generation systems, and related apparatus.

Required Knowledge of: Theories and practices of mechanical systems and their application to large-scale electrical systems and equipment related to hydroelectric power plants, water treatment and distribution systems, as well as general and utility facility mechanical systems, applying methods, practices, machine shop equipment for metal fabrication, and tools to ensure reliable operations for the movement and treatment of water, generation of power, and optimization of assets and equipment to meet operational demands within established limits and standards, contemporary maintenance reliability analysis and troubleshooting methods including determination of failure causes, diagnostic analysis through failure mode, and root cause analysis, using traditional analog and precision digital instruments to ensure critical measurements and alignments as part of diagnostic and predictive maintenance, including laser alignment equipment, analog and digital meters, calipers and other tools related to close tolerance analysis and work, and safety practices and regulations for operating or working near electrical and/or mechanical equipment, high voltage systems, hazardous materials, and associated tools and equipment.

Required Skills and Abilities to: Understand and interpret electrical engineering data necessary to effectively implement predictive, preventive, corrective, and improvement activities. Frequently perform or assist in the drafting, design, layout and development of procedures, manuals, orders and similar documentation to ensure safe operating techniques and/or for training, to interpret complex schematics, blueprints, electrical diagrams, instructions, manuals, operating and maintenance procedures, and specifications related to water treatment, conveyance and distribution and pump plant, as well as building, facility and hydroelectric power systems/equipment, and experience to utilize tools and diagnostic equipment to test and monitor equipment and asset condition, as well as repair, install and replace equipment necessary to meet water and electrical generation demand and/or capacity, use and maintain mechanical/electrical tools and equipment traditionally used in hydroelectric plants, pump plants, treatment plants, and within water and power control and distribution infrastructure and facilities, apply and guide others in adhering to safety practices and regulations for operating or working near electrical and/or mechanical equipment, 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 certifications, licensing and registrations:

- Valid Drivers license from state of residency equivalent to a California Class A, B, and/or C with appropriate commercial license endorsements
- Crane Certifications
- Chemical Responder Certification
- Forklift Certification
- Manlift Certification
- MWD High Voltage Switching Certificate

PHYSICAL DEMANDS/WORK ENVIRONMENT

Expectations of Hours of Service, Emergency and Stand-by Service:

Employees in this position may be required to work off-shift hours and/or rotating stand-by service to address operational needs and emergencies as required. May be required to work extended periods away from the normal reporting location. Requires participation in plant and system shutdowns and special projects.

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, crawling, climbing, kneeling and sitting for long periods of time. At times may be required to use Self Contained Breathing Apparatus (SCBA) or other respiratory filtration and personal protection devices.

Work Environment:

Work is performed indoors and outdoors at large pumping, treatment, hydroelectric or control facilities, or associated assets, under all types of conditions including extreme temperatures, 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 ranging from earthen materials to concrete, steel and water. Work frequently is conducted in close proximity to high volume/pressurized water, as well as exposed, 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.