



THE METROPOLITAN WATER DISTRICT  
OF SOUTHERN CALIFORNIA

## HYDROELECTRIC SPECIALIST I

<b>Group-Section:</b> Water System Operations - Various	<b>FLSA Status:</b> Non-Exempt <b>Bargaining Unit:</b> AFSCME	<b>Classification:</b> Operations and Maintenance Specialist <b>Salary Grade:</b> 42 <b>Job #:</b> T08
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### JOB SUMMARY

Utilizes journey level mechanical or electrical skills, experience and knowledge in the practices, procedures, and methods of installing, commissioning, maintaining and operating complex power systems equipment for ongoing reliability and uninterrupted service.

Responsible for learning either electrical or mechanical maintenance work related to power systems equipment at the District's hydroelectric plants, pumping plants, treatment plants and other facilities.

### OVERSIGHT

#### SUPERVISION:

##### **Received:**

Work is performed with clear and detailed instructions. Close supervision is given to ensure proper adherence to standards, procedures, rules, and practices. Checking for quality workmanship is accomplished on a routine basis. As the employee progresses in skill, knowledge, and experience, routine supervision may be appropriate. A lead person or supervisor provides guidance on the approach to tasks or activities encountered in non-standard or uncommon circumstances.

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.

### JOB DUTIES

Employees in this title are either learning the following through classroom and on-the-job training or they are gaining experience by working with a Hydroelectric Specialist II to enhance their skills to competently:

1. Assists with high-level maintenance tasks and activities at hydroelectric plants, pumping plants, treatment plants and other facilities with high voltage electrical equipment to ensure ongoing water and power reliability.
2. Assists with predictive, preventive and corrective maintenance associated with large motors, generators, protective relays, programmable logic controllers (PLC), power circuit breakers, variable frequency drives, as well as watt-hour metering and other metering, routers, communications, automation and control instrumentation.
3. Assists with testing and/or monitoring the capabilities, limits, serviceability, efficiency and effectiveness of equipment and processes relating to the power and water system using advanced computerized instrumentation.

4. Assists with installing and/or commissioning complex rotating machinery, hydraulic power, pneumatic, high voltage and controls systems, protective relays, watt-hour metering as well as auxiliary equipment associated with hydroelectric power, pump and water treatment plant systems to ensure conformance with established specifications.
5. Assists with performance and acceptance testing at hydroelectric plants, pump plants, and treatment plants to ensure optimal output to meet operational demands within prescribed operating limits of equipment and power systems.
6. Assists with testing, calibration, and maintaining electro-mechanical, electronic, microprocessor and logic based protective relays to insure the effectiveness of system coordination.
7. Assists with nondestructive testing such as; infrared thermal imaging, testing of insulating fluids; power factor insulation testing and power quality and quantity measurements for analysis as part of predictive maintenance to optimize equipment performance and life.
8. Learns to assist engineering with the planning, coordination, design and installation of new system equipment or modification to existing system equipment.
9. May respond to nonscheduled outages, shutdowns or other emergency situations to minimize equipment downtime or interruption of service.
10. Learns to assist with the development, planning and coordination of scheduled predictive, preventive and corrective maintenance.
11. Acts as a liaison for MWD with outside agencies and vendors such as; SCE, LADWP, DWR, and contractors to coordinate work, witness acceptance testing, and review reports, specifications and test data.
12. May be required to procure tools, materials, and equipment. Provides input into the development of the operation equipment budget items and specification for parts, labor and procedures.

## **EMPLOYMENT STANDARDS**

### **MINIMUM QUALIFICATIONS**

#### **Education and Experience:**

High school diploma or GED with a 4 year electrical or mechanical apprenticeship and 2 years journey level experience, or 6 years progressive experience related to industrial/utility electrical or mechanical maintenance.

Experience and knowledge as demonstrated by practical application of techniques and practices specific to the operations, maintenance, and repair of hydroelectric plants, pump plants, treatment plants and other facilities. Skills necessary include predictive and diagnostic evaluation of complex utility pump and power equipment using analog and digital test equipment. Also requires basic skills in installation and commissioning, utilizing predictive, preventive and corrective maintenance practices related to industrial/utility maintenance generally obtained through applicable training and experience.

**Required Knowledge of:** Employees in this title are either acquiring the following through classroom and on-the-job training or they are obtaining the necessary experience to competently demonstrate:

Basic knowledge of electrical, mechanical or electronic theories and practices and their application in the operation and maintenance of large-scale electrical/mechanical systems and equipment related to hydroelectric plants, pump plants, treatment plants and other facilities. Applying methods, practices, and tools to insure reliable operations for the movement of water, generation of power, and optimization of electrical equipment demands within established limits and standards.

**Required Skills and Abilities to:** Basic understanding and ability to interpret electrical or mechanical 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 hydroelectric plants, pump plants, treatment plants and other facilities. Utilize and maintain tools and diagnostic equipment to test and monitor equipment condition as well as repair, install, and replace equipment necessary to meet water and electrical generation demand and/or capacity. Basic skills 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 micrometers, calipers, and other tools related to close tolerance analysis and work. Use PC computer and Microsoft Office applications. Adhere to safety practices, clearance procedures and regulations for operating mechanical and electrical equipment, high voltage systems, hazardous materials, and associated tools and equipment.

## **CERTIFICATES, LICENSES AND REGISTRATIONS REQUIREMENTS**

Employees in this position will 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
- MWD High Voltage Switching Certification
- Crane Certification
- Forklift Certification
- Respirator Certification

## **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 stand-by services to address operational needs and emergencies as required. May be required to work extended periods 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. 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, 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 other 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 lifts, hoists, scaffolds, and cranes over surfaces ranging from earthen materials to concrete, steel and water. Work activity may be frequently conducted in close proximity to high volume/pressurized water, as well as exposed, electrically energized equipment including high voltage systems, large rotating, pneumatic, and hydraulic driven equipment. The work environment frequently involves exposure to equipment and tools producing high levels of noise, as well as potentially dangerous materials and chemicals that require careful adherence to extensive safety precautions, rules and regulations.