

Sacramento Suburban Water District Classification Specification

Job Class: Instrumentation & Electrical Technician

FLSA Status: Non Exempt

Supervisor: Superintendent (Production)

Effective Date: April 2017

Definition/Distinguishing Characteristics

Under general supervision, this journey level position performs basic work in the operation, installation, maintenance and repair of water production instrumentation and electrical systems.

Examples of Duties

The following duties are typical for this classification. Depending upon the assignment, the employee may not perform all of the listed duties and/or may be required to perform additional or different duties from those set forth below to address business needs and changing business practices. Management retains the right to add, remove, or change duties at any time.

- Performs comprehensive preventive and corrective maintenance on electrical, electronic, pneumatic or mechanical equipment utilized in control systems for water facilities including, but not limited to, flow meters, switches, thermocouples, transducers, variable frequency drives, analyzing equipment and telemetry equipment.
- Performs hardware and software design modifications to existing field instruments, programmable logic controllers and communication links used in SCADA systems.
- Installs, develops, monitors and maintains Supervisory Control and Data Acquisition (SCADA) systems and related software.
- Performs troubleshooting and diagnostic work on a variety of instrumentation and electrical systems and equipment; makes periodic preventive maintenance inspections of all metering and control instruments, diagnosing existing or potential trouble; cleans, lubricates, calibrates, and adjusts as conditions indicate.
- Inspects, maintains, repairs, installs and/or tests electrical circuits, transformers, switches, lighting fixtures, motor starters, motors, generators, outlets, control panels, electrical and communication components of telemetry systems, cathodic protection systems and other related electrical systems.
- Installs conduit and pulls wire for motors, control panels, lighting fixtures, outlets, and other purposes; lays out, installs, aligns, and places into service new metering and recording devices, calibrating as required; may extend or connect related electrical circuits; makes cable splices of various sizes and difficulty as required.
- Performs balancing operations and may make load computations on a variety of electrical circuits.
- Prepares and maintains accurate reports and documentation detailing work progress, changes in operational parameters and red-line drawings of system changes or upgrades.

- Reads and interprets blueprints, schematics, wiring diagrams, mechanical drawings, manuals and specifications in making installations or performing major work; makes as-built drawings of electrical installations.
- Makes estimates of labor, materials, and supplies necessary for the performance of specific assignments; orders materials and supplies.
- Assists in training personnel as assigned; reports and/or corrects unsafe working conditions.
- Coordinates and reviews work of outside consultants or other parties as required to insure proper plant performance.
- May inspect, maintain, repair, install and test emergency power generating equipment.
- Uses and maintains a wide variety of hand and power tools and test equipment related to the work; operates a truck on a daily basis.
- Complies with all District policies, procedures, rules and regulations including all safety standards.
- Maintains regular attendance and adheres to prescribed work schedule to conduct job responsibilities.

Mental and Physical Requirements

The conditions herein are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential job functions.

- Operates District owned or rented vehicles and equipment in the performance of field installations, maintenance and repair work.
- Travels frequently by automobile or truck in conducting District business.
- Communicates both written and orally with District management, coworkers, and vendors, both one-to-one, and in group settings.
- Regularly uses a telephone for communication.
- Regularly uses office equipment such as computers, copiers, and fax machines.
- Ability to carry, reach and lift supplies and equipment weighing up to 50 pounds.
- Ability to push, pull and maneuver supplies and equipment of varying weights and configurations.
- Ability to stoop, kneel, crouch, crawl and climb during field repair work.
- Ability to work in elevated positions and underground in confined places.
- Works out-of-doors as needed in all weather conditions with exposure to dust, dirt, water and significant temperature changes between cold and heat.
- Hearing within normal ranges with or without correction.
- Must wear CalOSHA approved protective footwear with a minimum ANSI I/75 or equivalent ASTM rating.
- Must possess good color vision.
- Occasionally required to change working hours or work overtime.

Qualifications

Knowledge Of:

- Materials, methods, equipment and tools used in the installation or repair of instrumentation and electrical systems in the water industry.
- Principles of operation and maintenance of various types of instrumentation and controls including mechanical, solenoid, hydraulic and bellows type actuators.

- Electrical and electronic circuits, micro-computer applications and telemetry systems related to the water industry hydraulics as related to the operation of recording and metering instruments.
- Operation and maintenance of a wide variety of hand and power tools and test equipment common to electrical and electronic work.
- Safe work methods and safety regulations pertaining to the work.
- AC/DC theory and control circuits.
- Codes, laws and ordinances pertaining to the work.
- Shop and electrical mathematics.
- Common office computer software and database programs, including the Microsoft Suite of Programs (Word, Excel, Outlook, Access and PowerPoint).

Ability To:

- Work safely on electrical circuits up to 600VAC or 1000VDC.
- Diagnose mechanical, hydraulic, pneumatic, electrical and electronic malfunctions in instruments and telemetry systems.
- Operate motor vehicles and a variety of hand, power and shop tools and equipment used in electrical installation, maintenance and repair work.
- Read, comprehend, and write plans, specifications, Operation and Maintenance manuals, procedures, schematics, wiring diagrams, single line diagrams, logic diagrams, blueprints, mechanical drawings and electrical plans.
- Make extensive repairs and overhauls to metering and control instruments.
- Exercise independent judgment and initiate action without close supervision.
- Make estimates of labor, materials and equipment necessary to complete assigned jobs.
- Maintain records, document modifications made to systems and make oral and written reports and presentations.
- Establish and maintain cooperative working relationships with coworkers, outside agencies, vendors, consultants/contractors and the public.
- Pass pre-employment physical, drug and alcohol examination and background check.

Education, Experience, Licenses and Certifications

Required:

- High school diploma or equivalent.
- Valid California Driver's License issued by the California Department of Motor Vehicles.
- Proof of good driving record as evidenced by freedom from multiple or serious traffic violations or accidents for at least two (2) years duration. The driving record will not contribute to an increase in the District's automobile insurance rates. Individuals who do not meet this requirement due to a physical disability will be considered for accommodation on a case-by-case basis.
- Four (4) years of journey level experience working on industrial instrumentation control and electrical systems.
- State of California Water Distribution Operator Certificate Grade D1, or ability to obtain within one (1) year of employment.

Incumbents must complete the designated number of contact hours (i.e., continuing education/training requirements) to maintain the required certification as a condition of continued employment.

Desirable:

Any combination of education and experience which would likely provide the desired knowledge and abilities is acceptable. A typical way to obtain the knowledge and abilities would be:

- State of California Certification as a General Electrician or completion of a recognized apprenticeship in the electrical trade is highly desirable.
- Experience working on instrumentation or electrical controls in the water or wastewater utility industry is highly desirable.
- State of California Water Treatment Operator Certificate Grade T1 and/or Water Distribution Operator Certificate Grade D2 are highly desirable.
- CWEA Electrical/Instrumentation Technologist Grade II.
- College or technical school coursework in Instrumentation and Control Technology.

The specific statements shown in each section of this class specification are not intended to be all-inclusive. They represent typical elements and criteria necessary to successfully perform the job.