

**RANCHO CALIFORNIA WATER DISTRICT  
POSITION DESCRIPTION**

**DATE:** July 1, 2019

**POSITION TITLE:** **ELECTRICAL CONTROLS / INSTRUMENTATION  
TECHNICIAN I / II / SENIOR**

**GRADE LEVEL:** E12 / E16 / E18

**SUPERVISOR TITLE:** Electrical Services Supervisor

**FLSA STATUS:** [ ] Exempt [X] Non-Exempt

**BARGAINING UNIT:** [X] RCWDEA [ ] RCWD MPCEA

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**DEFINITION**

Under immediate progressing to general supervision, to perform a variety of electrical and electronic maintenance and repair duties related to potable and reclaimed water distribution systems, wastewater treatment and sewage collection systems

**CLASS CHARACTERISTICS**

***Electrical Controls / Instrumentation Technician I***

This is the entry-level position in the Electrical Controls/Instrumentation Technician class series. Positions assigned to this level perform limited or routine electronic or electrical maintenance and repair service duties under close supervision. Because employees in classifications at this level may be in a training capacity, such positions do not require significant previous work experience. This job classification is represented by the Rancho California Water District Employees Association (RCWDEA) bargaining unit

***Electrical Controls / Instrumentation Technician II***

This is the journeyman level position in the Electrical Controls/Instrumentation Technician class series. Positions assigned to this level perform a full range of electronic and electrical service duties in the maintenance and repair of electrical equipment and systems, instrumentation systems, electrical control and communication systems under general supervision. Because employees in classifications at this level are expected to be fully trained and competent, such positions typically require significant previous work experience in the appropriate field. This job classification is represented by the Rancho California Water District Employees Association (RCWDEA) bargaining unit

### **Senior Electrical Controls / Instrumentation Technician**

This is an advanced journeyman level position in the Electrical Controls/Instrumentation Technician class series. Positions assigned to this level independently perform highly technical and specialized maintenance and repair duties at a level beyond that found at a journeyman level. Senior duties include assigning specific duties to apprentice and journeyman technicians, ensuring completion and compliance with applicable standards, policies, and procedures as well as providing technical assistance and training. Positions at this level also perform a full range of electronic and electrical service duties in the maintenance, repair, and inspection of electrical equipment and systems, instrumentation, electrical control and communication systems. Because employees in classifications at this level are expected to be fully trained and competent, such positions typically require significant previous work experience in the appropriate field. This job classification is represented by the Rancho California Water District Employees Association (RCWDEA) bargaining unit



#### **EXAMPLE OF DUTIES** (Duties may include, but are not limited to, the following):

- ✎ Perform scheduled electrical maintenance as required by District maintenance program
- ✎ Calibrate, modify, troubleshoot and repair all electrical and electronic equipment reported to be inoperative or malfunctioning
- ✎ Perform complex maintenance and repair duties to the District's SCADA system, instrumentation, radio, electrical equipment and controls
- ✎ Write and review control logic to ensure desired system operation
- ✎ Review drawings and material requests to determine compliance with the District's specifications based on national electrical codes and applicable industry standards
- ✎ Design and install electrical control and instrumentation systems for new sites and for the upgrade of existing sites
- ✎ Provide staff assistance to higher level staff; investigate and prepare recommendations related to operational issues
- ✎ Provide technical assistance and training as required; recommend work methods and procedures
- ✎ When requested, provide input into formal performance appraisals
- ✎ Coordinate / work with outside agencies and companies
- ✎ Perform related duties as assigned





#### **QUALIFICATIONS**

##### **Electrical Controls / Instrumentation Technician I**

**Knowledge of:**

-  Basic electrical and/or electronic theory
-  Applicable laws, codes and regulations including the National Electric Code

**Ability to:**

-  Perform basic troubleshooting, diagnosis and repair of electrical and/or electronic systems and equipment
-  Read and interpret electrical and/or electronic schematics
-  Operate a variety of electrical tools and electronic equipment
-  To install, modify, diagnose and repair instrument and control systems used in the treatment, storage, and distribution of potable water and reclaimed wastewater

**SELECTION GUIDELINES**

The appropriate knowledge, skills, and abilities can be achieved through a variety of combinations of experience and training. A typical example is:

**Experience:** One (1) or more year's general electrical and instrumentation maintenance and repair experience, preferably in a utility, industrial, or manufacturing operation

**Training:** Equivalent to completion of the 12<sup>th</sup> grade supplemented by specialized training in electrical, electronic and computer theory. National Electric Code Training, Electrical Apprenticeship Program, and/or Certificate in Electronics are desirable





**Licenses/Certificates:**

-  Valid C California driver's license, required





**Electrical Controls / Instrumentation Technician II**

*In addition to the qualifications for Electrical Controls / Instrumentation Technician I:*

**Knowledge of:**

-  Electrical and electronic theory and practices as applied to instrument and control equipment
-  Operational characteristics of a wide variety of electrical and electronic equipment and materials
-  Applicable mechanical and pneumatic systems related to systems and control equipment
-  Proficient in computer systems and operating systems

**Ability to:**

-  Install, diagnose and repair instrument and electrical control systems used in the treatment, storage and distribution of potable water and reclaimed wastewater
-  Calculate motor feeder conductors, conduit sizes, main disconnects and over-current devices
-  Read, comprehend, and interpret complex electrical and electronic system schematics
-  Perform PLC maintenance



**SELECTION GUIDELINES**

The appropriate knowledge, skills, and abilities can be achieved through a variety of combinations of experience and training. A typical example is:

**Experience:** Two (2) or more years of experience in electronic and electrical maintenance and repair of equipment, preferably in utility, industrial, or manufacturing operation.

**Training:** Equivalent to the completion of the 12<sup>th</sup> grade supplemented by extensive training in electrical, electronic and computer theory. AS/AA Degree in Electronics or Industrial Electricity or technical school equivalent. National Electric Code Training.









**Licenses/Certificates:**




-  D1 Water Distribution Certificate – SWRCB, required
-  Valid C California driver's license, required

**Sr. Electrical Controls / Instrumentation Technician**








*In addition to the qualifications for Electrical Controls / Instrumentation Technician I and II:*

**Knowledge of:**

-  Principles and practices of electrical and electronic theory
-  AC, DC, and three phase electrical theory
-  Electronic, pneumatic, and mechanical disciplines related to systems and control equipment design
-  Electrical controls and instrumentation design
-  Programmable Logic Controllers (PLC's)
-  Computer control software development and programming
-  Operation and application of variable frequency drives
-  Solid-state starters

-  Relay logic design and applications
-  Radio and telecommunications
-  High Voltage Electrical (up to 4160 vac)

**Ability to:**

-  Participate in a full range of electrical services
-  Diagnose facility-related problems and provide effective solutions
-  Operate a variety of electrical tools and electronic equipment
-  Use PLC software to develop, write, debug and document programs
-  Program PLC's both on-line and off-line
-  Develop SCADA screens and event control logic in control software
-  Understand and maintain computer networks as related to SCADA systems




**SELECTION GUIDELINES**

The appropriate knowledge, skills, and abilities can be achieved through a variety of combinations of experience and training. A typical example is:

**Experience:** Five (5) years minimum of increasingly responsible journeyman level work as an industrial electrician, and an electronic technician. Two years' experience in low and medium voltage (up to 4160 vac). Power generation experience desirable


**Training:** Equivalent to the completion of the 12<sup>th</sup> grade supplemented by extensive training or certificate in electrical, electronics and computer theory. AA/AS Degree in Electronics or Industrial Electricity or technical school equivalent. Verifiable training in low and medium voltage (up to 4160 vac). National Electric Code Training

**Licenses/Certificates:**

-  D2 Water Distribution Certificate – SWRCB, required
-  T1 Water Treatment Certificate – SWRCB, required
-  Valid C California driver's license, required

**PHYSICAL REQUIREMENTS/WORKING CONDITIONS**

The essential functions of this position may require the employee to perform the following physical activities:

-  Operates a District vehicle to travel between job sites and remote facilities

- ✎ Must be able to carry, push, pull, reach and lift equipment and parts up to 50 lbs and heavier weights with the use of proper assistance
- ✎ Stoop, kneel, crouch, crawl and climb during regular duties
- ✎ Communicates verbally with District management, co-workers, and the public in face-to-face, one-on-one, and group meetings
- ✎ Use office equipment such as computers, copier, and fax machines
- ✎ Regularly uses a telephone or radio for communication
- ✎ Stand and walk for extended periods
- ✎ Ability to speak and hear both in person, by telephone, and radio
- ✎ Vision within normal ranges including color vision with or without correction.
- ✎ Regular attendance

The essential functions of this position may expose the employee to the following working conditions:

- ✎ 50%-100% of work time spent outside a building exposed to the sun
- ✎ Inclement weather
- ✎ Hot and cold temperatures
- ✎ Hazardous materials
- ✎ Electrical hazards
- ✎ Heights
- ✎ Confined spaces
- ✎ Potentially dangerous tools and equipment
- ✎ Traffic hazards
- ✎ Trenching and excavations
- ✎ Wildlife

**OTHER REQUIREMENTS**

- ✎ The willingness to work nights, weekends, and overtime, as necessary
- ✎ On-call on a rotational basis

_____	_____
Employee Signature	Date
_____	_____
Supervisor/Manager Signature	Date