



Tuolumne Utilities District  
Job Description  
**ELECTRICIAN/ INSTRUMENTATION TECHNICIAN**

POSITION:	Electrician / Instrumentation	DEPARTMENT:	Operations
REPORTS TO:	Operations Manager	FLSA Status:	Non-Exempt
PAY RANGE:	Range 44	DATE PREPARED:	2015
INCUMBENT:			

**General Description:**

To perform semi-skilled and skilled duties related to the installation, maintenance, troubleshooting and repair of electrical, electronic, mechanical, and electro-mechanical equipment associated with the District's water treatment, distribution, and wastewater facilities.

**Essential Functions:** *–Essential responsibilities and duties may include, but are not limited to, the following:*

- Install, maintain, troubleshoot, repair and calibrate mechanical, instrumentation, electrical, electronic and electro-mechanical equipment and systems associated with the operation of District facilities.
- Maintain, repair, and adjust pumps and pump control systems including VFD's, soft starts, and pump control valves.
- Design, install, maintain, repair, calibrate, and troubleshoot telemetry, communication systems, and control systems, including PLC's, relay logic, SCADA systems, and HMI.
- Create and maintain diagrams, schematics, and diagrams; read and interpret mechanical, electrical and hydraulic drawings.
- Design and install electrical systems; run conduit, pull and size wire, and components.
- Install, repair, troubleshoot and maintain power generation systems including generators, transfer switches and batteries.
- Install, maintain, repair, and replace mechanical systems, including but not limited to, pumps, gear boxes, and various mechanical equipment related to the operation of the District's water treatment plants and pump stations .
- Assist with the research and purchase of parts, materials supplies and equipment necessary for electrical, electronic, or electro-mechanical repairs.
- Program and operate a variety of complex test equipment used in troubleshooting complex equipment.

- Maintain a variety of records of maintenance and repair activities.
- Build and maintain positive working relationships with co-workers, other District employees and the public using principles of good customer service.
- Perform related duties as assigned.

**Qualification Requirements:**

*To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.*

Knowledge of:

- Basic electrical theory and principles.
- Basic principles and practices of inspecting, troubleshooting and repairing of electrical, electronic, mechanical, and electro-mechanical components and instrumentation.
- Materials, tools and equipment used in the installation, maintenance, and repair of electrical, electronic, mechanical, and electro-mechanical components and instrumentation.
- Pertinent local, State and Federal laws, ordinances, rules and codes.
- Principles and practices of effective customer service.

Ability to:

- Independently perform semi-skilled and skilled duties involving the installation, maintenance, troubleshooting and repair of electrical, electronic, electro-mechanical, equipment, and instrumentation.
- Keep accurate records.
- Perform mathematical calculations accurately.
- Establish and maintain effective working relationships with those contacted in the course of work.
- Communicate clearly and concisely, both orally and in writing.
- Analyze complex electrical, electronic, electro-mechanical, and instrumentation systems.
- Accurately read blueprints, part lists, schematics and diagrams to determine appropriate action.
- Troubleshoot, isolate and make repairs to electrical, electronic, mechanical, and electro-mechanical equipment, and instrumentation.
- Operate and maintain a variety of tools and equipment used in the testing and repair of equipment.
- Solve practical problems and deal with a variety of situations where only limited standardization exists.
- Interpret a variety of instructions including technical manuals furnished in written, oral,

diagram or schedule form.

- Operate and use modern office equipment including a computer and applicable software.
- Respond to after-hours emergency situations.

Responsibility to:

- Obey safe work practices, procedures, and regulations including wearing protective equipment and safety devices.
- Operate equipment in a careful and safe manner. Acknowledge the use of safeguards by other employees.
- Report any removal, displacement, damage, destruction, or tampering of safety devices, safeguards, notices or warnings.
- Report any safety risks or hazards to your supervisor or other management personnel.
- Report to your supervisor or other management personnel any work assignment that you feel would require you to perform the work in an unsafe manner.

**Physical Demands:**

*The physical demands described 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 functions.*

A person employed in this position must also be able to:

- Sit for extended periods of time
- Operate a desktop computer
- Operate motor vehicles and other equipment
- Operate a variety of hand and electric tools
- Perform a variety of physical activities that include reaching, bending, squatting, kneeling, crouching, crawling, and climbing, and manual dexterity
- Perform additional physical activities to position or move tools, equipment, and supplies which may involve lifting, and pushing or pulling motions
- Vision abilities required to include close vision, color vision, depth perception, and the ability to adjust focus.
- Understand and carry out oral and written directions
- Communicate well with others, verbally and in writing
- Investigate and solve complex problems involving the ability to perform visual inspections, ability to hear normal versus abnormal noises, ability to view and respond to operational control screens including alarms, and ability to think critically.

**Work Environment:**

*The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.*

While performing the duties of this job, the employee is regularly exposed to risk of electrical shock. The employee occasionally works near moving mechanical parts and in outside weather conditions and is occasionally exposed to toxic or caustic chemicals.

Outside: Drives a vehicle and performs work in a variety of weather conditions ranging from snow to 100+F.

Fumes/Gasses: Exposure to various vapors from internal combustion engines; exposure to dust generated during construction operations; exposure to fumes from weed control chemicals and waste treatment and collection.

Noise/Vibration: Moderate exposure to noise, and minimal vibration from tools and equipment.

**Education and Experience Guidelines:**

*Any combination of experience and education that would likely provide the required knowledge and abilities is qualifying. A typical way to obtain the knowledge and abilities would be:*

**Experience:**

Five years of increasingly responsible experience involving the maintenance, troubleshooting, repair and installation of instrumentation, electrical and electronic equipment associated with the operation of water and wastewater treatment plants and water distribution and wastewater collections systems.

**Education:**

Minimum of a high school diploma or GED, supplemented by college or equivalent course work in electronics, instrumentation, control systems, or related field.

**Certificates, Licenses, Registrations:**

Possession of a valid California driver's license, a satisfactory driving record, and be insurable by the District to operate District vehicles.

Journey level electrician background and desired formal training in instrumentation, communication and computer technology.

Must possess CWEA Grade II (or higher) Electrical/Instrumentation Technician Certification or obtain within two years of hire date.

Must obtain California Water Distribution Certificate, Level 1, within 18-months of hire date.

California State Certified Electrician desirable.

**Work Hours:**

7:00 – 3:30 PM; five consecutive workdays. Subject to change, as required to meet the needs of the District. Must be willing to work overtime and/or alternative schedule when required. May be required to participate in emergency on-call or standby on a regular basis; therefore, must live within a 15-mile radius of the District’s main facility.

I have reviewed and agree to abide by any requirements reflected in this job description.			
_____	_____	_____	_____
Supervisor’s Signature	Date	Employee’s Signature	Date
Approved by General Manager:    Approval Date: ____ / ____ / ____			