

## **INSTRUMENTATION/ELECTRICAL TECHNICIAN**

### **Definition/Summary**

Under general supervision, positions in the Instrumentation/Electrical Technician classification performs work in the operation, installation, maintenance, and repair of water and wastewater production electrical and instrumentation systems.

### **Essential Functions**

- Inspects, maintains, repairs, installs, and tests electrical circuits, transformers, switches, motor starters, motors, generators, control panels, electrical components of telemetering systems, cathodic protection systems, communication networks, and related electrical systems.
- Prepares computer systems and peripheral equipment in preparation for performing data processing operations.
- Installs, maintains, repairs, overhauls, calibrates, and tests a wide variety of pneumatic, hydraulic, photo-electric, electric, electromechanical, and electronic recording, indicating, controlling, telemetering, and test instruments, including: digital tone equipment, and multiplex equipment; flow meters, pressure recorders, level indicators; pressure regulators, and gauges, chemical feeder controllers, pneumatic controllers and regulators, and telemetering receivers and transmitters.
- Performs troubleshooting and diagnostic work on a variety of electrical equipment; makes periodic preventive maintenance inspections of all metering control instruments, diagnosing existing or potential trouble; cleans, lubricates, calibrates, and adjusts as conditions indicate.
- 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.
- Assists with the design and development of new applications, providing input from an operator's point of view.
- Establish and maintain cooperative working relationships with co-workers, outside agencies, and the public.
- Regular attendance and adherence to prescribed work schedule to conduct job responsibilities.

### **Other Duties**

- Works on electrical and mechanical controls, control wiring, instruments, meters, and related test equipment associated with water supply, wastewater treatment, disposal and related facilities.
- Identifies and corrects problems associated with electrical and mechanical equipment, machinery, and instrumentation.

- Maintains a preventative maintenance program which includes cleaning, lubrication, adjustments, visual inspections, minor repairs and calibrations necessary to maintain equipment, machinery, instruments, test equipment, wiring, and associated hardware at required specifications.
- Solders and replaces components, component wiring, indicators and wiring harnesses.
- Maintains accurate records; makes oral and written reports of work performed.
- Prepares written policies and procedures relating to safe and proper operations, maintenance, repair and preventative maintenance standards of electrical equipment, machinery and testing equipment.
- Coordinates equipment repairs and maintenance with operations staff for minimal disruptions to operations.
- Orders equipment, replacement parts and services from vendors and manufacturers.
- Uses and maintains a wide variety of 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 records and prepares reports.
- Performs related duties as assigned.

### **Job Standards/Specifications**

#### Knowledge of:

- Principles, methods, tools, and equipment used in installing, maintaining, calibrating, repairing and replacing electrical equipment, machinery and related equipment.
- Principles, capacities, and operation of computer systems and peripheral equipment.
- Electronic and electric theory, specifically as it relates to modern electronic equipment.
- Operation and maintenance of a wide variety of tools and test equipment common to electrical and electronic work.
- Preventative maintenance requirements for electronic and electrical equipment.
- AC/DC theory and control circuits.
- Hydraulics as related to the operation of recording and metering instruments.
- Safe work methods; codes, laws, and ordinances pertaining to the work.

#### Ability to:

- Work on high voltage electrical circuits safely.
- Diagnose mechanical, hydraulic, pneumatic, electrical, and electronic malfunctions in instruments and telemetering systems.
- Operate motor vehicles and a variety of hand, power, and shop tools and equipment used in electrical installation, maintenance, and repair work.

- Ability to 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, make oral and written reports, maintain inventory and order materials, chemicals and supplies.
- Train other workers as assigned.
- Work as Plant Operator I.
- Work weekdays, weekends, holidays and standby.
- Pass pre-employment physical and background check.

### **Typical Physical Activities**

- Operates District vehicles and equipment.
- Must be able to carry, push, pull, reach, and lift equipment and parts weighing up to 50 pounds.
- Stoops, kneels, crouches, crawls, and climbs during maintenance and repair work.
- Works in environment with exposure to dust, and dirt.
- Communicates orally with District staff in face-to-face, one-to-one settings.
- Sufficient finger/hand coordination and dexterity to operate and adjust equipment.
- Regularly uses a telephone for communication.
- Uses office equipment such as computer terminals, copiers, and FAX machines.
- Stands and walks for extended time periods.
- Hearing and vision within normal ranges with or without correction.

### **Environmental Factors**

1. Exposure to the sun: 50% to 100% work time spent outside a building and exposed to the sun.
2. Work above floor level: Some work done on ladders or other surfaces from 4 to 12 feet above the ground.
3. Wetness: More than 10% of the work time getting part or all of the body and/or clothing wet.
4. Noise: Occasionally there are unusually loud sounds.
5. Slippery surfaces: Occasional work on unusually slippery surfaces.
6. Oil: Some parts of the body in contact with oil or grease occasionally.
7. Dust: Works in or around areas with minor amounts of dust.
8. Irregular or extended work hours: Occasionally required to change working hours or work overtime.

### **Desirable Qualifications**

Any combination of education and/or training which would provide an opportunity to acquire the knowledge and abilities listed. Normally, completion of an academic or vocation program leading to an associate degree in electronic technology would provide such opportunity.

- High school diploma or equivalent.
- Minimum of two years experience installing, maintaining, repairing, calibrating, and replacing electrical equipment and machinery.
- Completion of a recognized apprenticeship in the electrical trade. College or technical school coursework in electrical theory and practice is desirable.
- Experience working on electrical or instrumentation controls in the Water or Wastewater Utility industry is highly desirable.

**License Certificate Registration Requirement**

Driver License: Possession of a valid California Class C Driver License may be required at the time of appointment. Failure to obtain or maintain such required license(s) may be cause for disciplinary action. Individuals who do not meet this requirement due to a physical disability will be considered for accommodation on a case-by-case basis.

Possession and proof of a driving record free of multiple or serious traffic violations or accidents for two (2) consecutive years.

General Certifications: Within 18 months of hire: Grade I Wastewater Treatment Plant Operator Certificate issued by the California State Water Resources Control Board, a Grade I Water Operator Certificate issued by the California State Water Resources Control Board and a Grade 1 Water Distribution Certification issued by the California State Water Resources Control Board. Must possess and maintain the appropriate certification for a Plant Operator I, as required by the California State Water Resources Control Board.

**I have reviewed this Job Description with my Supervisor and agree with its contents.**

\_\_\_\_\_  
**Employee Signature**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Supervisor Signature**

\_\_\_\_\_  
**Date**

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