



Electrical and Instrument Technician

Department/Division:	Operations/Production
Reports To:	Chief Water Systems Operator - Production
Provides Direction To:	None
FLSA Exemption Status:	Non-Exempt
Effective Date:	12/19/2024

GENERAL PURPOSE

Under general direction, performs a variety of skilled duties, including but not limited to design, construction, installation, modification, maintenance, and repair of electrical and electronic circuits, including machinery, motors, instrumentation, plant control system components and related devices. Monitors electrical equipment and systems for operation condition and performance, including predictive and advanced diagnostic testing; preventative and corrective electrical maintenance used in collection, transmission, and treatment of water in a variety of facilities found in a water system; and performs related duties as assigned.

DISTINGUISHING CHARACTERISTICS

The Electrical and Instrument Technician is a discrete classification responsible for performing skilled work in the installation, inspection, adjustment, maintenance, repair and/or monitoring of a variety of electrical/electronic equipment such as the District's telemetry system and Supervisory Control and Data Acquisition (SCADA) equipment. At this level, incumbents learn and perform a full range of less complex tasks and a limited range of the more specialized, complex work tasks. The Electrical and Instrument Technician is distinguished from the Electrical and Instrumentation and Control Specialist in that the Electrical and Instrument Technician works with lower voltage equipment.

ESSENTIAL FUNCTIONS

The duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to the class.

- Tests, troubleshoots, calibrates, repairs and performs preventative maintenance on a variety of industrial electrical and electronic systems, components and devices.
- Installs conduits, wire, pull boxes, switchboards, controllers and switches required in making additions, extensions or alterations in industrial electrical systems.
- Estimates time, materials and equipment needed for jobs assigned; requisitions materials and works with outside contractors and vendors used to provide instrumentation services or materials.
- Reads and interprets a variety of technical manuals, charts, schematics, blueprints and gauges to troubleshoot instrumentation equipment.
- Uses, operates and maintains electronic test equipment, computer hardware and software associated with the testing and adjusting of equipment.
- Provides technical assistance and advice to other District staff in connection with the operation of computerized telemetry equipment and other electrical or electronic systems.

- Repairs, troubleshoots, and maintains automation systems at the District's Water Filtration Treatment Plant, water wells, pump stations and well head treatment facilities.
- Performs a variety of repair and preventive maintenance on electronic motor controls, controllers, turbidity meters, electronic flow meters, pH meters, chlorine analyzers, and automatic chlorination equipment.
- Maintains portable and stationary emergency generators; installs emergency generator transfer switches and sets proper rotation of electrical phasing.
- Maintains records of work performed.
- Assists in the maintenance of the Water Filtration and Treatment Plant equipment.
- Performs a variety of construction, maintenance, and repair work such as updating, rewiring, and replacing lighting elements and fixtures.
- Assists with procurement of equipment, tools and supplies.
- District employees are expected to work overtime, weekends, evenings, and holidays as required to accommodate the District's needs, in addition to responding as a Disaster Emergency Service Worker.
- Maintains assigned District vehicle including servicing and periodic safety checks.
- Participates in District safety meetings.
- Observes safe work methods and safety practices related to the work; maintains current electrical safety standards and practices.
- Maintain prompt and regular attendance.
- Performs other related duties, as assigned.

QUALIFICATIONS GUIDELINES

Knowledge of:

- Theory, principles, systems, hardware, tools, testing equipment, practices and procedures common to the repair and maintenance of electronic devices and electrical systems.
- Telemetry equipment including hardware and theory of operation.
- Domestic water sampling techniques and chlorination equipment/control.
- The application of GIS to water distributions systems.
- Policies, rules, procedures and regulations related to water production service, treatment and repairs.
- Automatic control valves and their maintenance.
- Blending operations and equipment.
- Water systems, processes, standards, principles and common practices.
- Basic hydraulics.
- Water distribution facilities including mains, meters, hydrants and valves.
- Methods and practices of basic facility construction, maintenance, and repair work.
- Cross Connection Control practices for detection of contamination into the water system.
- Routine record keeping.
- Basic mathematics.
- Modern office procedures, methods and equipment including computers.
- Principles of vehicle operation, maintenance, and mechanics.
- Safe work practices.

Ability to:

- Inspect, operate, diagnose problems, and perform preventive maintenance and repair work on relays, electric motors, electrical panels, remote telemetry units, telemetry devices, meters, controllers, and related equipment.
- Train lesser-skilled staff in duties associated with SCADA and electronic equipment.
- Determine work methods and materials for assigned jobs.

- Maintain accurate records of work performed.
- Read and interpret a variety of charts and gauges.
- Assist in the maintenance of water filtration plants.
- Perform skilled responsible water system maintenance duties at an advanced journey level.
- Perform heavy physical labor.
- Communicate clearly and concisely.
- Establish and maintain cooperative working relationships.
- Understand and carry out oral and written instructions.
- Observe proper safety precautions.
- Work overtime as required.
- Operate a vehicle observing legal and defensive driving practices.
- Operate standard office equipment, personal computers, Internet, and Microsoft Office software.

Minimum Qualifications

Any combination of education, training, and experience that would likely provide the knowledge, skills, and abilities to successfully perform in the position is qualifying. A typical combination includes:

Education:

A high school diploma or satisfactory equivalent, and the completion of two (2) years of college level or trade school coursework (60 semester units or 90 quarter units) in electronics or a related field; and

Experience:

A minimum of two (2) years of progressively responsible experience in the repair and maintenance of computers, communication networks, programming SCADA, electronic control devices and related equipment.

Licenses, Certificates; Special Requirements:

Must possess an appropriate valid Class "C" Driver's License issued by the California State Department of Motor Vehicles, and a good driving record.

Ability to obtain a Crane Operator's Certificate, issued by the National Commission Certification of Crane Operators within 12 months of hire.

Possession of a Grade II Water Distribution Operator's Certificate, issued by the State Water Resources Control Board – Division of Drinking Water is desirable.

Completion of two courses in water treatment plant operations, water distribution system operation, wastewater treatment plant operations or any combination thereof.

PHYSICAL AND MENTAL DEMANDS

The physical and mental demands described here are representative of those that must be met by employees to successfully perform the essential functions of this class. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this classification, an incumbent is regularly required to stand; use hands and fingers to handle or feel; talk and hear. The incumbent is

frequently required to walk and to reach with hands and arms. The employee is frequently required to sit, climb or balance and stoop, kneel, crouch or crawl. The incumbent must regularly lift and/or move up to ten (10) pounds, frequently lift and/or move up to fifty (50) pounds, and occasionally lift and/or move up to one hundred (100) pounds. Must be able to work at heights up to 150 feet. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception and ability to adjust focus. Work involves exposure to potential harm, infectious disease and hazardous chemicals including smoke, fumes, gas, treated water, high frequency noise, dirt, dust, grease, oil, chemicals, solvents and toxic agents. Incumbents need to be able to tolerate unpleasant odors, wet conditions and uncomfortable climate conditions.

THIS POSITION MAY BE ELIMINATED, OR THE DUTIES, QUALIFICATIONS AND TRAINING REQUIRED CHANGED BY THE BOARD OF DIRECTORS AND/OR THE GENERAL MANAGER, WHEN IN THEIR JUDGEMENT, IT IS CONSIDERED NECESSARY AND PROPER FOR THE EFFICIENT OPERATION OF THE DISTRICT.