

ELECTRICAL TECHNICIAN I/II

DEFINITION

Under immediate (Electrical Technician I) to general (Electrical Technician II) supervision, performs a variety of specialized and technical duties relating to installation, preventive and corrective maintenance, inspection, and servicing of electrical and instrumentation equipment, components and facilities associated with the production, pumping, storage, delivery and treatment of potable, agricultural, reclaimed and wastewater; and performs related duties as assigned.

SUPERVISION RECEIVED AND EXERCISED

Receives immediate (Electrical Technician I) to general (Electrical Technician II) supervision from assigned supervisory or management personnel Exercises no direct supervision over staff.

CLASS CHARACTERISTICS

Electrical Technician I is the entry-level classification in the Electrical Technician class series. Initially under close supervision, incumbents learn and perform routine predictive, preventive, and corrective maintenance on a wide variety of electrical and instrumentation equipment. As experience is gained, assignments become more varied, complex, and difficult; close supervision and frequent review of work lessen as an incumbent demonstrates skill to perform the work independently. Positions at this level usually perform most of the duties required of the positions at the II level but are not expected to function at the same skill level and typically exercise less independent discretion and judgment in matters related to work procedures and methods. Work is usually supervised while in progress and fits an established structure or pattern. Exceptions or changes in procedures are explained in detail as they arise.

Electrical Technician II is the fully qualified journey-level classification in the Electrical Technician class series. Positions at this level are distinguished from the I-level by the performance of the full range of duties as assigned, working independently, and exercising judgment and initiative. Positions at this level receive only occasional instruction or assistance as new or unusual situations arise and are fully aware of the operating procedures and policies of the work unit. This class is distinguished from the Electrical Technician III in that the latter provides technical and functional direction to lower-level support staff and is responsible for the more complex work.

Positions in the Electrical Technician class series are flexibly staffed; positions at the Electrical Technician II level are normally filled by advancement from the Electrical Technician I level. Progression to the Electrical Technician II level is dependent on satisfactory work performance (an overall performance rating of “exceeds standards” or higher on most recent annual performance evaluation is required), the incumbent meeting the minimum qualifications for the classification including any licenses and certifications, and management approval.

EXAMPLES OF TYPICAL JOB FUNCTIONS (Illustrative Only)

Management reserves the right to add, modify, change, or rescind the work assignments of different positions and to make reasonable accommodations so that qualified employees can perform the typical functions of the job.

Positions at the Electrical Technician I level may perform some of these duties and responsibilities in a learning capacity.

- Performs predictive, preventive, and corrective maintenance on a wide variety of pumps, engines, switchgear, control panels and other equipment related to wastewater treatment plants, wells, booster stations, and sewer lift stations.
- Performs corrective, preventive, and predictive maintenance on a variety of industrial electrical systems, such as motors, variable frequency drives, soft-starts, circuit breakers, motor control centers, automatic transfer switches, stand-by generators, transformers, electric actuators, lighting and building power systems.
- Installs, troubleshoots, repairs, programs, calibrates, tests, and maintains various types of analog and digital systems such as variable frequency drives, solid-state starters, reduced voltage starters, smart breakers, electric valve actuators, instrumentation controllers and sensors, ultrasonic controllers, liquid level controls and other electrical equipment.
- Plans, estimates time, coordinates, requisitions materials, performs and prepares reports related to assigned tasks.
- Performs general electrical work including but not limited to layouts, assembly, installation, and testing of electrical equipment; measures, cuts, threads, and bends conduit; installs, modifies, and repairs electrical panels, remote control equipment, motors, power, and lighting circuits.
- Diagnoses well and booster pumping station operations using specialized tools and testing/diagnostic instrumentation; troubleshoots pumps and motors and makes appropriate adjustments and repairs.
- Installs and troubleshoots new electrical equipment and tests for proper operation; performs corrective maintenance by troubleshooting cause of malfunction using visual inspection and precision measuring and testing instruments and replacing or repairing broken parts, such as gauges, wires, fuses, relays, sensors, switches, circuit boards and other electrical components.
- Reads, understands, interprets, and works from blueprints, plans, schematics, diagrams, and maps as related to wells, pumping stations, hydraulic control equipment and electrical control systems.
- Performs confined space and permit required confined space entry in accordance with local, State, and federal guidelines, regulations, and laws; completes pre-entry checklists, performs atmospheric testing and evaluation of various entry conditions and situations; assists in the calibration and maintenance of confined space atmospheric testing instrumentation and self-contained breathing apparatus units.
- Maintains records on all maintenance repair and service activity; obtains, analyzes, and inputs to a computerized maintenance management program, the preventive or corrective maintenance and repair information for all work performed; defines and enters the scheduled maintenance and repair task descriptions on horizontal, centrifugal, and deep well type turbine pumps, engines, motors, and other electrical equipment.
- Uses standard and specialized test equipment such as insulation tester, voltmeter, ammeter, oscilloscope, vibration monitoring equipment, infrared thermal imaging camera and other specialized test equipment.
- Orders replacement parts to perform maintenance and repairs as necessary; maintains inventory of replacement parts and equipment; performs field inventories and verifies equipment nameplate data.
- Participates in the development of District safety programs; observes and complies with all District and mandated safety rules, regulations, and protocols.

- Responds to water and wastewater plants, boosters, wells and lift station emergencies and problems as required; makes emergency field repairs; participates in standby rotation and responds to after hour emergencies as required.
- Operates a variety of vehicles, light and heavy equipment, hand and power tools, and specialized precision measuring and testing instruments.
- Provides maintenance assistance, and coordinates work assignments across functional areas and with agency contractors and subcontractors, in activities involving electrical repairs and maintenance of water/wastewater systems, construction/reconstruction, plant and dam maintenance operations, as assigned.
- Performs related duties as assigned.

QUALIFICATIONS

Positions at the Electrical Technician I level may exercise some of these knowledge and abilities statements in a learning capacity.

Knowledge of:

- Principles, methods, materials, tools, and equipment required for installation, maintenance, diagnosis and repair of domestic, reclaimed, and agricultural water pumps, engines, switchgear, control panels wells, booster stations, sewer lift stations, and other equipment related to water or wastewater treatment plants.
- Operations, services, and activities of water and wastewater electrical maintenance and repair programs.
- Principles, methods, materials, tools, and equipment used in the construction, maintenance and troubleshooting of electric systems and equipment.
- Principles of electrical theory as applied to electrical circuits and wiring systems.
- National electric codes, including electrical codes for workplace safety.
- Industrial 3 phase 240V and 480V power distribution.
- Principles of preventive and predictive maintenance programs.
- Operating characteristics and application of electrical test equipment.
- Methods and techniques of performing diagnostic troubleshooting.
- Proper procedures used in the maintenance and repair of hand and power tools.
- Mathematical principles.
- Principles and practices of record keeping.
- Occupational hazards and standard safety practices including working with high voltage.
- Applicable federal, state, and local laws, codes, regulations, and ordinances relevant to the area(s) of responsibility.
- Techniques for providing a high level of customer service by effectively dealing with the public, vendors, contractors and District staff.
- The structure and content of the English language, including the meaning and spelling of words, rules of composition and grammar.
- Modern equipment and communication tools used for business functions and program, project, and task coordination, including computers and software programs relevant to work performed.

Ability to:

- Perform a variety of tasks involving the installation, construction, maintenance and repairs on electrical equipment and systems associated with water, wastewater, and agricultural water systems.
- Inspect, troubleshoot, diagnose, and repair electrical equipment within water, wastewater,

- and reclaimed water systems.
- Operate a variety of maintenance, repair, installation, and electrical testing equipment in a safe and effective manner.
- Perform preventive maintenance on motors, electric actuators, control panels, switchgear and other equipment used in water, wastewater, and reclaimed water systems.
- Read and understand technical manuals, blueprints, electrical diagrams and schematics, shop drawings and sketches.
- Perform heavy manual labor.
- Perform assigned work in accordance with appropriate safety practices and regulations.
- Maintain a variety of repair records.
- Measure, cut, thread, bend and install conduit, pull wire and work on control wiring and equipment.
- Perform accurate mathematical calculations.
- Use a computerized maintenance management system for scheduling, tracking, and analyzing all work performed on equipment.
- Use SCADA to operate, troubleshoot and identify potential problems with District facilities and equipment.
- Comply with Cal-OSHA respirator facemask fit test requirements.
- Use Self Contained Breathing Apparatus (SCBA).
- Respond to public inquiries in a courteous manner; provide information in accordance with District policies.
- Independently organize work, set priorities, meet critical deadlines and follow-up on assignments.
- Use tact, initiative, prudence and independent judgment within general policy and procedural guidelines.
- Effectively use computer systems, software applications relevant to work performed and modern business equipment to perform a variety of work tasks.
- Communicate clearly and concisely, both orally and in writing, using appropriate English grammar and syntax.
- Establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.

Education and Experience:

Any combination of training and experience that would provide the required knowledge, skills, and abilities is qualifying. A typical way to obtain the required qualifications would be:

Education:

Equivalent to completion of the twelfth (12th) grade supplemented by college-level coursework or trade school training in electrical technology and/or electrical maintenance or a related field.

Experience:

Electrical Technician I

- One (1) year of responsible experience in the maintenance and repair of electrical and mechanical equipment and controls common in large waterworks and wastewater systems and treatment plants, or other similar industrial settings.

Electrical Technician II

- Three (3) years of increasingly responsible experience in the maintenance and repair of electrical and mechanical equipment used in the distribution, collection and treatment of water or wastewater systems, or other similar industrial settings.

Licenses and Certifications:

Electrical Technician I/II

- Possession of, or ability to obtain, crane operator certifications issued by the National Commission for the Certification of Crane Operators within twelve (12) months of employment.
- Possession of California Class C driver's license, to be maintained throughout employment.

Electrical Technician I

- Possession of, or ability to obtain, a valid Grade I Electrical/Instrumentation Technologist Certificate issued by the California Water Environment Association, within twelve (12) months of employment.

Electrical Technician II

- Possession of a valid Grade II Electrical/Instrumentation Technologist Certificate issued by the California Water Environment Association, at time of appointment.

PHYSICAL DEMANDS AND WORKING ENVIRONMENT

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.

ENVIRONMENT

Indoor/outdoor and wastewater treatment plant environment; travel from site to site; exposure to noise, dust, grease, smoke, fumes, noxious odors, gases, vibrations, electrical energy, radiant energy and all types of weather and temperature conditions; exposure to hazardous traffic conditions; work in or around water and wastewater; work and/or walk on various types of surfaces including slippery or uneven surfaces and rough terrain; work in confined spaces; incumbents may be required to work extended hours including evenings and weekends.

PHYSICAL

- Level Three
- NIDA
- Pulmonary

Incumbents require sufficient mobility to walk, stand and sit for prolonged periods of time; frequently stoop, bend, kneel, crouch, crawl, climb, reach and twist; push, pull, lift, and/or carry 100 lbs., exposure to harsh weather, hazardous chemicals, confined spaces, respirator; use of large mechanical tools, electrical tools and frequent exposure to extended periods of noise; operate assigned equipment and vehicles; ability to verbally communicate to exchange information.

VISION

See in the normal visual range with or without correction; vision sufficient to read computer screens and printed documents; and to operate assigned equipment.

HEARING

Hear in the normal audio range with or without correction.

ADDITIONAL REQUIREMENTS

Must be able to respond within a forty-five (45) minute time period to the District's Corporate Yard while on standby duty; must be able to communicate by telephone for the duration of the on-call shift.