

ELECTRICAL TECHNICIAN III

DEFINITION

Under direction, leads and participates in the work of employees engaged in the construction, installation, inspection, testing, calibration, predictive, preventive and corrective maintenance and repair of electrical systems and process control instrumentation systems and related equipment used in the production, treatment, storage, transmission, and distribution of potable, agricultural, reclaimed and wastewater; assists in project management and may provide oversight for special projects; and performs related duties as assigned.

SUPERVISION RECEIVED AND EXERCISED

Receives direction from assigned supervisory or management personnel. Exercises technical and functional direction over and provides training to lower-level staff.

CLASS CHARACTERISTICS

This is the advanced-level classification in the Electrical Technician **class** series. Incumbents work under direction and exercise a high level of discretion and independent judgment in performing the full range of routine to complex duties associated with the installation, preventive and corrective maintenance, inspection and servicing of electrical and instrumentation equipment, components, and facilities. Incumbents also provide lead direction and supervision to clerical, technical, and professional staff.

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.

- Leads, provides work direction and guidance to assigned crew; participates in scheduling, assigning, and monitoring the work of designated staff for accuracy, completeness, and conformance with District standards; provides information, instruction and training on work processes, proper use of equipment and safe work practices; provides input to supervisor on employee work performance and behaviors.
- Participates in the oversight of major repair projects and upgrades of electrical systems, process control instrumentation and related equipment; responds to requests for information (RFIs) and reviews design plans and construction submittals; works with engineers to resolve problems with new installations, construction and the purchase of replacement equipment.
- Monitors work of contractors and employees to ensure timely completion of maintenance and repair projects/work orders in accordance with District policies and safety standards; assists with field inspections of work progress and at completion.
- Plans, estimates time, coordinates, requisitions materials; performs and prepares reports related to assigned tasks.
- Performs corrective and preventive maintenance on a variety of industrial electrical systems, such as motors, variable frequency drives, soft-starts, circuit breakers, switchgear, motor control centers, automatic transfer switches, stand-by generators, transformers, control panels, electric actuators, lighting and building power systems using various testing equipment and tools.

- Performs the most advanced electrical work, including but not limited to designing and/or drafting control diagrams, elevations, and layouts; assembles, installs, and tests and repairs electrical equipment, including electrical panels, remote control equipment, motors, power and lighting circuits.
- Tests, troubleshoots, calibrates, repairs, and performs advanced preventive, corrective and predictive maintenance on a variety of electrical systems and process control instrumentation, HVAC systems, and components, and devices associated with the production, treatment, storage, transmission and distribution of wastewater, potable, agricultural and reclaimed water.
- Diagnoses well and booster pumping station equipment using specialized tools and testing/diagnostic instrumentation; troubleshoots pumps motors and makes appropriate adjustments and repairs.
- 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; prepares and maintains detailed documentation and work records, including data on facilities, details of failures, descriptions of work performed, as-built sketches, blueprints, and drawings.
- Enters scheduled and completed maintenance and repair tasks on horizontal, centrifugal, and deep well type turbine pumps, engines, motors, and other electrical equipment into database; maintains accurate records on all maintenance repair and service activity.
- Installs and troubleshoots new electrical equipment and tests for proper operation; troubleshoots cause of malfunction using visual inspection and precision measuring and testing instruments; replaces or repairs broken parts such as gauges, wires, fuses, relays, sensors, switches, circuit boards and other electrical components.
- Schedules and coordinates activities with other departments; works with other water/wastewater staff, contractors, and sub-contractors in performing maintenance duties as necessary including electrical repairs and maintenance.
- 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.
- Uses a variety of 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; uses and manages district assigned procurement credit card by allocating transactions to proper accounts and submitting receipts with monthly statement to supervisor.
- Operates a variety of vehicles, cranes, light and heavy equipment, hand and power tools, and specialized precision measuring and testing instruments.
- 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.
- Responds to public inquiries in a courteous manner; provides information in accordance with district policies.
- Acts in the absence of the Electrical Maintenance Superintendent, as assigned.
- Performs related duties as assigned.

QUALIFICATIONS

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.
- Principles of effective leadership and supervision.
- Operations, services and activities of water and wastewater electrical maintenance and repair programs.
- 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.
- Operational characteristics of both water and wastewater treatment plant systems and 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:

- Assign and inspect the work of Electrical Technicians and other maintenance workers.
- Perform a variety of advanced and complex 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 agricultural 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 municipal water, wastewater, and agricultural water systems.
- Read and understand technical manuals, blueprints, electrical diagrams and schematics, shop drawings and sketches.
- Provide effective work direction, training, and guidance to designated staff.
- 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).
- Interpret, explain, and enforce department policies and procedures.
- Respond to public inquiries in a courteous manner; provide information in accordance with District policies.
- Independently organize own work and work of others, 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:

- Five (5) 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.

Licenses and Certifications:

- 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 a valid California Class C driver's license, to be maintained throughout employment.
- Possession of a valid Grade II Electrical/Instrumentation Technologist Certificate issued by the California Water Environment Association.
- Possession, or ability to obtain, a valid Grade III Electrical/Instrumentation Technologist Certificate issued by the California Water Environment Association, within twelve (12) months of employment.

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.