



DECEMBER 2018
FLSA: NON-EXEMPT

ELECTRICAL TECHNICIAN I

This class specification indicates, in general terms, the type and level of work performed as well as the responsibilities of employees in this classification. The job functions described are not to be interpreted as being all-inclusive to any specific employee.

DEFINITION

Under direct or general supervision or direction, performs a variety of non-complex and/or complex assignments in the maintenance, repair, and installation of electrical equipment up to 12K volts, including lighting systems, sump pumps, controls, motors, transformers, generators, batteries, cranes, variable frequency drives, air conditioners, and switch gears; performs predictive, preventive and corrective maintenance on assigned equipment; and assists contractors as necessary.

SUPERVISION RECEIVED AND EXERCISED

Receives direct or general supervision or direction from the assigned supervisory and/or managerial staff. Exercises no direct supervision over staff.

CLASS CHARACTERISTICS

This classification is the second of five (5) levels within the electrical maintenance job series, with work being routinely performed on up to 480 volt electrical equipment. The Electrical Technician I may assist with work on equipment up to 12K volts under close oversight or supervision. Positions at this level have prior experience but are not expected to function with the same amount of knowledge or skill as positions allocated to the Electrical Technician II level. The Electrical Technician I exercises less independent 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.

EXAMPLES OF ESSENTIAL JOB FUNCTIONS (Illustrative Only)

The following essential job functions are typical for this classification. Incumbents may not perform all of the listed job functions and/or may be required to perform additional or different job functions from those set forth below to address business needs and changing business practices.

- Performs a variety of non-complex and complex preventive maintenance duties; inspects equipment; checks voltage and amperage; tightens, cleans, and lubricates equipment; locates potential problems.
- Ensures established safety precautions are adhered to, corrects unsafe work conditions / practices, and/or reports unsafe work conditions / practices to assigned supervisory or managerial staff.
- Performs non-complex corrective maintenance; isolates power and ground wires; troubleshoots problems and makes necessary repairs; restores power and checks equipment for proper operation.
- Performs non-complex electrical circuit installation for additions or modifications; bends and installs conduit; pulls wire and wiring in circuit as shown on blueprint; tests system for proper installation.
- Records data regarding refrigerant usage, tracking inventory, usage and loss as required by EPA regulations.
- Assists contractors as necessary by switching electrical power or other functions as required by the District.

- Drives generator truck, hooks up power, transfers load at pump stations.
- Performs a variety of tests, samples, and readings, to determine if equipment is showing any signs of deterioration; determines appropriate corrective action and implements.
- Performs routine maintenance work in plant or at pump stations including painting, cleaning and digging; drives District vehicles or generator trucks.
- Gathers parts and materials for assigned jobs and contacts other departments involved in the maintenance or repair of equipment.
- Records data regarding electrical equipment, including voltage and amps readings and date and type of work performed, on daily work schedule form; updates data in an online maintenance management system for back logs, lockout/tagout, and other equipment information that is necessary.
- Installs conduits, pulls wire and wiring in circuits as shown on blueprint, and tests system for proper operation.
- Prepares clear and concise purchase requisition forms.
- Maintains and repairs HVAC and/or electrical equipment at pump stations such as motors, switchgears, substations and control equipment; generates power at pump stations during outages by connecting emergency generator to pump stations.
- Maintains, troubleshoots and repairs open loops, closed loop and flow-through water systems including evaporative condensers, cooling towers, chilled water loops and heating water loops; tests and adjusts water system chemical levels to provide protection against corrosion and scaling.
- Maintains and repairs pneumatic VAV systems and electronic building automation systems.
- Designs, integrates, and upgrades new systems and/or integrates the design into an existing system.
- Performs infrared testing, oil analysis, high voltage testing of switchgears and cables, and protective relay calibration.
- Participates in a full-featured predictive maintenance program using condition monitoring, recording new baselines for newly installed equipment and continuing to periodically monitor for future trends.
- Works on up to 12K volt equipment, isolates, tests and grounds electrical equipment while wearing personal protective equipment (PPE).
- Works on 480 volt and 12K volt generators, operates, synchronizes, parallels and transfers plant load.
- Maintains and updates all electrical drawings, schematics and single line drawings.
- Troubleshoots and repairs electrical, electronic and microprocessor-based electrical control equipment.
- Performs preventive, predictive and corrective maintenance on electrical, generation and distribution systems including 12K volt generators, exciters, 12K volt circuit breakers, generator controls, 12K volt power transformers and motors up to 2,600 horsepower in collaboration with a supervisor or lead person.
- Performs predictive, preventive and corrective maintenance on uninterruptible power supplies (UPS) and DC power system for generator and switchgear controls.
- Performs related duties as assigned

QUALIFICATIONS

Knowledge of:

- Operational characteristics of electrical equipment, and components.
- Electrical and electronic technology principles and practices.
- Principles, methods, materials, and tools used in electrical repair and maintenance work.
- Principles of electrical theory as applied to electrical circuits and wiring systems.
- Methods and techniques of maintaining, installing and repairing electrical systems and equipment.
- Methods and techniques of troubleshooting electrical equipment and components.
- Methods and techniques of high voltage electrical system maintenance and repair.
- Operating characteristics and application of electrical test equipment.
- Operational principles of a wastewater treatment facility.
- Preventive and corrective maintenance techniques.

- Electrical safety regulations, practices, and procedures.
- National Electrical Code.
- NFPA-70E (National Fire Protection Association).
- Principles of diesel engine operation and troubleshooting.
- Office procedures, methods, and equipment including computers and applicable software applications such as word processing, spreadsheets, maintenance management systems and databases.
- Testing and calibrating electrical protective relays.
- Hardware and cabling technologies.
- Mathematical principles and calculations.
- Principles and procedures of record keeping.
- Occupational hazards and standard safety practices.
- English usage, spelling, vocabulary, grammar, and punctuation.
- Principles and practices of customer service and techniques for effectively communicating with the public, vendors, contractors and District staff.

Ability to:

- Perform a variety of repair, maintenance, and cleaning duties on electrical equipment and systems.
- Inspect, troubleshoot, diagnose, and repair electrical and electronic malfunctions.
- Operate a variety of electrical repair, maintenance and installation equipment in a safe and effective manner.
- Bend and install conduit, pull wire and work on control wiring and equipment.
- Use electrical test equipment.
- Read, interpret, and understand plans, schematics, technical manuals, diagrams, and operating and maintenance manuals.
- Design basic electrical controls.
- Utilize a computer, relevant software applications and/or other equipment.
- Perform mathematical calculations necessary for electronic and electrical troubleshooting.
- Prepare clear and concise technical reports.
- Work independently in the absence of supervision.
- Work extended hours, including nights, weekends and holidays when necessary.
- Adhere to safe work practice and procedures in the workplace.
- Operate a motor vehicle and travel to various District sites, projects and/or meetings.
- Effectively communicate in person, over the telephone, and in writing.
- Establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.

Employment Standards:

Any combination of education and experience that provides the required knowledge, skills, and abilities may be qualifying as determined by OCSD.

1. High school diploma or G.E.D. supplemented by specialized training or coursework such as relevant trade school in electrical technology or a related field; AND
2. Two (2) years of experience maintaining, repairing, and installing electrical equipment.

Licenses and/or Certificates:

- Valid California Class C Driver's License.

Disaster Service Workers:

All Orange County Sanitation District employees are designated Disaster Service Workers through state law (California Government Code Section 3100-3109). Employment with the Orange County Sanitation District requires the affirmation of a loyalty oath to this effect. Employees are required to complete all related training as assigned, and to return to work as ordered in the event of an emergency.

Standby and Call Back:

Employees in this classification may be required to participate in standby duty and are subject to call back, which may include nights, weekends and 24-hour emergency call out with little or no notice. Any employee designated to serve on standby, or report to an emergency, and refuses to do such, shall be subject to disciplinary action up to and including termination.

PHYSICAL DEMANDS

Must possess mobility to work in and around wastewater treatment plants and pump/lift stations and related utility systems and facilities; strength, stamina, and mobility to perform moderate to heavy physical work, to work in confined spaces and around machines, to climb and descend ladders, and to operate varied hand and power tools and equipment; ability to travel to various District sites, projects and/or meetings; vision to read printed materials and a computer screen; and hearing and speech to communicate in person and over the telephone or radio. The job involves fieldwork requiring frequent walking in operational areas to identify problems or hazards. Finger dexterity is needed to access, enter, and retrieve data using a computer keyboard or calculator and to operate above-mentioned tools and equipment. Positions in this classification bend, stoop, kneel, reach, and climb to perform work and inspect work sites. Employees must possess the ability to lift, carry, push and pull materials and objects weighing up to 40 pounds, or heavier weights with the use of proper equipment.

ENVIRONMENTAL ELEMENTS

Employees work in and around facilities and are exposed to loud noise levels, cold and hot temperatures, inclement weather conditions, road hazards, vibration, confining workspace, chemicals, mechanical and/or electrical hazards, and hazardous physical substances and fumes. Employees may interact with upset staff and/or public and private representatives, and contractors in interpreting and enforcing departmental policies and procedures.