ELECTRICAL TECHNICIAN I

SUMMARY
Under direct or general supervision of the Electrical Supervisor, performs journey-level skilled electrical and instrumentation work in the installation, inspection, testing, preventive maintenance, troubleshooting, and repair of electrical, electronic, instrumentation, telemetry, and related control equipment used throughout District water treatment, pumping, conveyance, water supply, building, and support facilities.

DISTINGUISHING CHARACTERISTICS

Electrical Technician I is the journey-level classification in the electrical technician series. Incumbents independently perform the full range of routine to difficult electrical and instrumentation maintenance within established procedures and standards. PLC, SCADA, HMI, telemetry, and control-system work at this level is generally limited to routine troubleshooting, equipment replacement, program upload/download, setpoint changes, and other established tasks. Electrical Technician II is distinguished by advanced, independent responsibility for PLC/SCADA programming, control-system design and integration, complex automation troubleshooting, and technical leadership.

EXAMPLES OF DUTIES

The duties listed below are illustrative only and are not meant to be a complete, exhaustive listing of all of the duties and responsibilities of the classification:

Electrical and Instrumentation Maintenance Duties:

- Inspect, test, maintain, troubleshoot, repair, install, and modify electrical systems and equipment from low-voltage control circuits through District medium-voltage systems, including transformers, switchgear, breakers, motor control centers, starters, relays, motors, generators, automatic transfer switches, lighting, and related equipment.
- Troubleshoot variable frequency drives, variable speed drives, protective relays, motor controls, power-monitoring systems, and other solid-state or microprocessor-based equipment.
- Install, calibrate, maintain, troubleshoot, and repair instrumentation and process-control devices including actuators, flow meters, pressure and level devices, differential-pressure devices, analytical instruments, and associated control loops.
- Perform preventive and corrective maintenance on electrical, instrumentation, telemetry, and control-system equipment and document work in the District computerized maintenance management system (CMMS).
- Use electrical test instruments, diagnostic software, power-monitoring tools, and equipment history to identify failures, determine root causes, and recommend reliability improvements.

Controls, Telemetry, and Communications Duties:

- Perform basic troubleshooting and maintenance of PLCs, RTUs, HMI components, telemetry equipment, industrial communications, and associated field wiring under established District standards.
- Upload and download approved PLC programs, replace control-system components, verify signals, and make authorized setpoint or configuration changes within assigned scope.

- Support installation and testing of radio, Ethernet, and other communications equipment used for District monitoring and control systems.

Projects and Work Coordination Duties:

- Read and interpret electrical drawings, one-line diagrams, loop diagrams, P&IDs, specifications, vendor manuals, and related technical documents.
- Review project drawings and submittals within assigned technical scope; provide field input for new or modified facilities; and inspect contractor electrical work for conformance with approved plans, applicable codes, and District standards.
- Estimate labor, materials, tools, and supplies for assigned work; obtain vendor quotations and coordinate material availability as directed.
- Coordinate work with Operations, Maintenance, Engineering, Water Supply, contractors, and vendors to minimize service interruptions and safely return equipment to service.
- Perform other duties as assigned.

Environmental Factor Activities:

- Work indoors and outdoors in varying weather and temperature conditions at water treatment, pumping, conveyance, and related facilities.
- Exposure to noise, dust, grease, lubricants, cleaning solutions, water, chemicals, uneven or slippery surfaces, and other conditions typical of industrial and utility facilities.
- Work in proximity to energized electrical equipment and rotating or pressurized equipment in accordance with applicable safety procedures and required personal protective equipment.

Typical Physical Activities:

- Operate District vehicles and travel to treatment, pumping, conveyance, and remote facilities.
- Stand and walk for extended periods; climb ladders and stairs; stoop, kneel, crouch, crawl, reach, push, and pull while performing inspection and maintenance work.
- Lift and carry tools, parts, and equipment weighing up to 50 pounds, with assistance or lifting devices used when appropriate.
- Work at heights and in permit-required confined spaces when assigned and properly trained.
- Use computers, radios, telephones, test instruments, and other tools required for the work.
- Respond to emergency call-outs and work overtime, nights, weekends, or holidays when required.

EMPLOYMENT STANDARDS

Knowledge of:

- Electrical theory, industrial electrical systems, methods, tools, materials, and safe work practices used in the electrical trade.
- National Electrical Code (NEC), NFPA 70E, Cal/OSHA requirements, lockout/tagout, arc-flash hazards, and other applicable electrical and workplace safety standards.
- Industrial instrumentation, process-control loops, motor controls, VFDs, generators, transfer equipment, and basic PLC/SCADA concepts.

- Methods used to read and interpret electrical schematics, one-lines, loop diagrams, P&IDs, specifications, and technical manuals.
- Basic computerized maintenance management system (CMMS) practices and maintenance documentation.

Ability to:

- Diagnose and repair electrical and instrumentation problems using appropriate test equipment and safe work practices.
- Plan and perform assigned electrical and instrumentation work with limited supervision while recognizing conditions requiring escalation or additional technical support.
- Read, interpret, and update electrical and instrumentation drawings and accurately document completed work.
- Communicate effectively orally and in writing; prepare clear maintenance records, reports, and standard operating or maintenance procedures as assigned.
- Use standard office software and computer-based diagnostic, maintenance, and monitoring systems.
- Establish and maintain effective working relationships with District staff, contractors, vendors, outside agencies, and the public.

QUALIFICATIONS

Any combination of education and experience that would likely provide the necessary knowledge and abilities is qualifying. A typical way to obtain the knowledge and abilities would be:

Required Certification/Education/Experience/License:

- Certification:
  - No certification required

- Education:
  - Completion of a High School Diploma or equivalent.

- Experience:
  - Completion of a recognized electrical apprenticeship or equivalent industrial electrical/instrumentation training.
  - Two (2) years of journey-level experience in industrial electrical, instrumentation, process control, or closely related work.

- License:
  - Possession of a valid California (Class "C") Driver's 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.

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