



Service Beyond Expectation

ELECTRICAL/INSTRUMENTATION TECHNICIAN I/II

Job Status: Non-Exempt
Date Adopted: 11-2001
Date Modified: 03-16-2023

Safety Sensitive Position

Class specifications are intended to present a descriptive list of the range of duties performed by employees in the class. Specifications are not intended to reflect all duties performed within the job.

DEFINITION

Under general supervision, 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 system for operation condition and performance, including predictive and advanced diagnostic testing; preventive 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

This series class specification defines and describes the nature and levels of work performed in the Instrumentation Technician job series.

Electrical/Instrumentation Technician I is the entry-level in the Electrical/Instrumentation Technician series. At this level, incumbents learn and perform a limited range of the less complex or specialized work tasks, under closer supervision, with less latitude for independent action.

Electrical/Instrumentation Technician II is the experienced, journey-level in the Electrical/Instrumentation Technician series. At this level, incumbents perform the full range of tasks common to the classification series, under less supervision, while exercising discretion and independent judgment within established guidelines.

SUPERVISION RECEIVED AND EXERCISED

Direct supervision is received from the Operations Supervisor (Automation & Controls) and/or Operations Manager (Production).

Technical and/or functional work direction may occasionally be provided to Electrical/Instrumentation Technician I/II by the Lead Electrical/Instrumentation Technician.

ESSENTIAL AND MARGINAL FUNCTION STATEMENTS

Essential and other important responsibilities and duties may include, but are not limited to, the following:

Essential Functions:

- I. Designs, modifies and changes control systems; programs equipment used for water blending, changes set points and other system parameters, and performs PLC programming to change control logic on a permanent or temporary basis.

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2. Tests, troubleshoots, calibrates, repairs and performs preventive maintenance on a variety of industrial electrical and electronic systems, components and devices.
3. Performs daily electrical/electronic preventative maintenance, repair of the District's water systems; motor controls, programmable logic controllers, industrial networking hardware, turbidity meters, electronic flow meters, pH meters, chlorine analyzers, automatic chemical and chlorination equipment.
4. Installs conduits, wire, pull boxes, switchboards, controllers and switches required in making additions, extensions or alterations in industrial electrical systems.
5. 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.
6. Reads and interprets a variety of technical manuals, charts, schematics, blueprints and gauges to troubleshoot instrumentation equipment.
7. Uses, operates and maintains electronic test equipment, computer hardware and software associated with the testing and adjusting of equipment.
8. Participates in discussions and research relating to the acquisition, upgrading and installation of new or modified telemetry and electronic control systems and equipment.
9. Provides technical assistance and advice to other District staff in connection with the operation of computerized telemetry equipment and other electrical or electronic systems.
10. Works safely with a variety of voltages from 24VDC to 480VAC.
11. Observes safe work methods and safety practices related to work: maintains current electrical safety standards and practices
12. 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.
13. Regular attendance at the work site.

Marginal Functions:

1. Performs related duties and responsibilities as required.

KNOWLEDGE, SKILLS, AND ABILITIES

Knowledge of:

Theory, principles, hardware, testing equipment and procedures common to the repair and maintenance of electronic devices and electrical systems.

Operational characteristics of telemetry equipment, meters, controls, treatment plant instruments, and other electrical/electronic equipment.

Methods and techniques used to diagnose operational defects in telemetry systems.

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Principles of preventive maintenance governing electrical/electronic systems.
Pertinent Federal, State and local laws and regulations, including electrical codes.
Instrumentation calibration and adjustment procedures.
Occupational hazards, standard safety practices.

Skill in:

Use of electrical and electronic test equipment, hand and power tools, and equipment.
Operating a personal computer and related software.
Ability to operate and work from an aerial man-lift.

Ability to:

Install, modify, design and repair equipment related to electronics, instrumentation control and telemetry.
Calibrate, align, and test a variety of systems designed to monitor treatment plant and water system processes and activity.
Design, update and fabricate new equipment, control systems and software.
Read and interpret a variety of technical manuals, charts, schematics, blueprints and gauges.
Operate equipment and processes related to water conveyance and treatment.
Understand and carry out oral and written instructions.
Communicate clearly and concisely, both orally and in writing.
Establish and maintain cooperative working relationships with those contacted in the course of work.
Maintain physical condition appropriate to the performance of assigned duties and responsibilities.
Maintain mental capacity which allows the capability of making safe, sound decisions and demonstrating intellectual capabilities.
Maintain effective audio-visual discrimination and perception needed for making observations, communicating with others, reading, writing and operating assigned equipment.

REQUIRED QUALIFICATIONS

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

Job Title	Electrical/Instrumentation Technician I	Electrical/Instrumentation Technician II
Experience	<ul style="list-style-type: none">One (1) year of experience in the installation, maintenance, repair, and alteration of electrical and electronic equipment, preferably at a water or wastewater facility.	<ul style="list-style-type: none">Two (2) years of journey-level experience in the installation, maintenance, repair, and alteration of electrical and electronic equipment, preferably at a water or wastewater facility.
Education/Training	<ul style="list-style-type: none">Equivalent to a High School Diploma and the completion of a formal electrical program at an accredited college or university.	

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Required Qualifications (continued):

Job Title	Electrical/Instrumentation Technician I	Electrical/Instrumentation Technician II
Required License /Certification	<ul style="list-style-type: none"> • Possession of, or ability to obtain within one (1) year of appointment, a valid T1. • Possession of, or ability to obtain within one (1) year of appointment, a valid D1. • Possession of, or ability to obtain within one (1) year of appointment, the CWEA, Electrical & Instrumentation Technologist Certification, Grade 1, or equivalent. 	<ul style="list-style-type: none"> • Possession of, or ability to obtain within one (1) year of appointment, a valid T2. • Possession of, or ability to obtain within one (1) year of appointment, a valid D2. • Possession of, or ability to obtain within one (1) year of appointment, the CWEA, Electrical & Instrumentation Technologist Certification, Grade 2, or equivalent.
Desirable Degree/ License/ Certification	<ul style="list-style-type: none"> • Valid D2. • Valid T2. • CWEA, Electrical & Instrumentation Technologist Certification, Grade 2, or equivalent. 	<ul style="list-style-type: none"> • Valid D3. • Valid T3. • CWEA, Electrical & Instrumentation Technologist Certification, Grade 3, or equivalent.
DMV Class	<ul style="list-style-type: none"> • Possession of, or ability to obtain within one (1) year of appointment, a valid California Class A Commercial driver's license with a Hazardous Materials endorsement and a satisfactory driving record. 	

PHYSICAL DEMANDS AND WORKING ENVIRONMENT

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

Environment:

Outdoor field environment; exposure to dust, driving on a daily basis; frequent exposure to electrical hazards, high or low temperatures, noise; limited exposure to confined work spaces, dirt, high workplaces, poor lighting, wetness and humidity. Water treatment plant environment; exposure to electrical energy; work in and around water.

Physical:

Incumbent require sufficient mobility to work in a field environment; balancing, climbing, crawling, driving, hearing, heavy physical labor, kneeling or crouching, lifting or carrying objects weighing up to 50 pounds or more, reaching, grasping and manipulating small objects, seeing, sitting, speaking, standing, walking, stooping, bending, using manual and power hand tools, using heavy equipment, working outside and underground, climbing reservoir and building ladders, and working in elevated outdoor locations.

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Mental:

While performing the duties of this class, the employee is regularly required to use oral and written communications skills; read documents or instructions; analyze and solve problems; observe and interpret data or information; use math and mathematical reasoning; learn and apply new information or skills; interact with District staff, other organizations and customers who may be upset or dissatisfied.

Vision:

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

Hearing:

Hear in the normal audio range with or without correction.