

**JOB DESCRIPTION**  
**Controls Technician I (Flex)**  
**Controls Technician II**  
**Code Number: 46003, 46004**

**GENERAL PURPOSE**

Under general supervision, performs a wide variety of skilled duties in the design, development, installation, modification, maintenance and repair of industrial electrical and electronic control systems, plant control systems, RF and fiber optic-based telecommunication systems used in the production, treatment, storage, transmission and distribution of potable and reclaimed water, the collection of wastewater, and the operation of a large state-of-the-art wastewater reclamation plant; and performs related duties as assigned.

**DISTINGUISHING CHARACTERISTICS**

Controls Technician I is the entry-level class. Initially under immediate supervision, incumbents learn and perform a variety of skilled duties in the design, construction, testing, calibration, development, modification, maintenance and repair of electronic and computer-based process control, radio telecommunication systems and equipment, and industrial electrical equipment such as transformers, devices, controls, motors and machinery ranging from low to 12000 volts, used in the production, treatment, storage, transmission and distribution of potable and reclaimed water and the collection and transmission of wastewater, and the operations of a large state-of-the-art wastewater reclamation plant. As experience is gained, duties become more diversified and are performed under more general supervision. This class is alternately staffed with Controls Technician II, and incumbents may advance to the higher level after gaining experience and demonstrating proficiency which meet the qualifications for the higher-level.

Controls Technician II is the experienced/journey-level class in this series. Under general supervision, incumbents perform the full range of assigned duties. This class differs from the lower-level class in the skill level required and the complexity of assigned projects based on knowledge of the District's equipment, systems standards and procedures. Controls Technician II is further distinguished from Senior Controls Technician in that the latter serves as either a lead or advanced-journey level in the series.

Employees in this classification are subject to on-call, which may include rotating-duty schedule, weekends and 24-hour emergency call out with little or no notice. Any employee designated to serve on-call who repeatedly refuses to serve on-call, or report for emergencies, shall be subject to disciplinary action up to and including discharge.

## **ESSENTIAL DUTIES AND RESPONSIBILITIES**

***The duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to the class.***

Tests, troubleshoots, locates and calibrates, repairs and performs preventive maintenance on a variety of industrial electrical and electronic systems, components and devices associated with the reverse osmosis desalters, micro-filtration plants, treatment, storage, transmission and distribution of potable and reclaimed water, the collection and transmission of wastewater, and the operation of a large state-of-the-art wastewater reclamation plant; rebuilds equipment to manufacturer's specifications, including motor controllers, flow and pressure transmitters, level instruments, audio-tone transmitters, radio communication, process control, supervisory control and instrumentation, telemetry systems, devices and scientific instruments using operational performance standards, and standard and specialized testing equipment; corrects defects in instrumentation.

Repairs and replaces defective parts in motors, generators, storage batteries, solar-generating equipment, power transfer, regulation and phasing equipment, uninterruptible power supplies, switchboards, controllers, conductors, switches and other industrial electrical fixtures in making additions, extensions and modifications in electrical systems; installs, maintains and repairs electromechanical, electronic and electrical components of equipment and machinery, including transformers, exciters, generators and pneumatic and hydraulic devices.

Services and performs preventive maintenance on remote terminal units used in the plant's treatment process control system; troubleshoots, repairs and programs remote terminal units, including the replacement of hardware components, circuit boards, power supplies and electronic components.

Diagnoses, troubleshoots and repairs coaxial, copper and fiber optic cables for communication systems; installs, relocates, modifies, designs, troubleshoots, performs preventive maintenance and repairs a wide variety of electronic communications, LAN and SCADA systems, equipment and components.

Performs preventive maintenance and repair of plant, field and shop electrical and electronic systems, components, devices and equipment, including hazardous chemical feed, storage systems, and leak detection equipment, laboratory equipment, flow stations, reservoirs, motors, pumps and electrical-mechanical valves.

Disconnects electrical sources (up to 12,000 volts), uses lockout/tag out procedures and current OSHA requirements; reconnects and operates equipment at panel for maintenance purposes.

Tests, troubleshoots, calibrates and performs preventive maintenance on a variety of complex electrical and electronic devices, such as programmable logic controllers, analog and digital systems, telemetry-based controllers, fiber-optic telecommunication systems equipment, software-based control and instrumentation logic, including soft/start, VFD and Murphy microprocessor-based controllers.

Develops and writes control programs for wells, booster plants and lift stations; makes program modifications to various programmable logic controllers (PLC) and their operator interface terminals.

Isolates and resolves equipment and system failures in the field; performs bench repairs at the component level in a shop setting; troubleshoots, aligns and calibrates equipment with such devices as frequency generators, voltmeters, oscilloscopes, multi-meters, logic analyzers, meggers, ammeters, computers, infrared pyrometers, thermo-imaging devices, digital analyzers and other specialized test equipment.

Installs, maintains and repairs weather-station equipment.

Inspects and oversees equipment installation work performed by contractors and District personnel.

Tests solid state circuitry to locate defective parts in analog and digital equipment; replaces defective parts.

Installs conduits, wires, pull boxes, switchboards, controllers and switches required in making additions, extensions or alterations in industrial electrical systems; installs motors, controls, telemetry equipment, transformers, exciters and generators.

Designs and modifies motor control equipment circuits, ladder logic, planning, laying out and wiring the work; reads and interprets blueprints, schematics and wiring diagrams; upon completion, draws modifications made to the system.

Schedules and coordinates activities with other sections and divisions.

Researches new operational methods, techniques and equipment and recommends their application.

Ensures the timely and accurate completion of preventive maintenance activities.

Submits requisitions for necessary tools, equipment and supplies; participates in developing annual plant budget for electrical and instrumentation needs.

Plans and lays out jobs from blueprints, drawings, sketches or verbal instructions; maintains records in the form of blueprints, plans and specifications for industrial electrical and instrumentation, radio telemetry and other related devices.

Responds to emergency situations as necessary.

Uses CMMS for tracking of work orders, data entry, status changes, and tracking of equipment.

May assist in training or instructing others in the work; may lead the work of others as a project leader.

Performs related duties as assigned.

## **DESIRED MINIMUM QUALIFICATIONS**

### **Knowledge of:**

Practices, methods, techniques, tools and equipment used in the design, installation, testing, calibration, maintenance and repair of electrical and electronic equipment and devices common to a large waterworks system and state-of-the-art wastewater reclamation plant, including devices used for automated process control; operating characteristics of electronic components, including programmable logic controllers, feed back devices, variable frequency drives and operator interface programs, microprocessor controls; electrical and electronic shop procedures and practices; safety work methods and safety regulations pertaining to the work; shop mathematics; Safe Drinking Water Act and relevant EPA regulations; computer applications related to the work; codes, ordinances and regulations pertaining to the work.

### **Ability to:**

Test, diagnose, program, calibrate and repair a wide variety of electrical and electronic instrumentation devices, motors, machinery and equipment common to the waterworks field and large state-of-the-art wastewater reclamation plant; program and modify programmable logic controllers as well as interface devices; use modern, state-of-the-art precision and diagnostic instruments to test, calibrate and repair complex electrical and electronic devices and equipment; identify and implement effective courses of action to complete assigned work; read and interpret plans, specifications and manuals; exercise independent judgment within established guidelines; coordinate work assignments with other divisions or departments; operate and maintain scrubber and chlorine leak detector equipment, radio-based and fiber-optic telemetry and associated hardware and software equipment; establish and maintain effective working relationships with those contacted in the course of work; follow and apply written and oral work instructions; communicate effectively, orally and in writing.

**Training and Experience:**

A typical way of obtaining the knowledge, skills and abilities outlined above is graduation from high school, or G.E.D. equivalent; and two years of journey-level experience in the design, installation, maintenance and repair of complex electrical and electronic equipment and devices common to a large waterworks system and wastewater treatment plant; or an equivalent combination of training and experience.

A Controls Technician I may be considered for advancement to the II level after demonstrating proficiency to perform the full range of duties of the latter class.

Typically, a Controls Technician I is expected to be capable of meeting the proficiency criteria within a 6-24 month period, depending on an individual's prior experience and progression in performing the full range of Controls Technician II duties as described in the established performance criteria.

**Licenses; Certificates; Special Requirements:**

A valid California driver's license and the ability to maintain insurability under the District's Vehicle Insurance Policy.

CWEA Electrical/Instrumentation certification is desired

## **PHYSICAL AND MENTAL DEMANDS**

*The physical and mental 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 functions.*

### **Physical Demands**

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls; and reach with hands and arms. The employee frequently is required to stand and talk or hear; walk or sit; climb and work up to heights of 100 feet; stoop, kneel, crouch or crawl.

The employee must occasionally lift and/or move up to 50 pounds and frequently over 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception and the ability to adjust focus.

### **Mental Demands**

While performing the duties of this class, the incumbent is regularly required to use written and oral communication skills; read and interpret data, information and documents; analyze and solve problems; use shop mathematics; observe and interpret situations; deal with changing, intensive deadlines; and interact with officials and the public.

## **WORK ENVIRONMENT**

*The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this class. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.*

The employee frequently works outside in a wide range of weather conditions, near moving mechanical parts, and on slippery and uneven surfaces. Employees may, at times, be required to wear appropriate personal protective equipment including respiratory protection while performing work in environments that could have the potential to contain wet or humid conditions, vapors or particulates, hazardous chemicals, and the risk of electric shock. The noise level in the work environment is frequently loud.

**FLSA DETERMINATION:** Non-exempt.

**FLEX REQUIREMENTS**  
**Controls Technician I (Flex)**  
**Controls Technician II**

**LENGTH OF TIME REQUIRED**

A Controls Technician I may advance or “flex” to the Controls Technician II class after **6-24 months** of experience in the Controls Technician I class.

**PERFORMANCE RATING**

The incumbents must receive an overall performance rating of “Meets Expectations” or better on their most recent annual performance evaluation in order to flex to the higher class.

**COMMENTS**

The Controls Technician I must also demonstrate proficiency to perform the full range of duties as described in the Controls Technician I/II job description. Proficient skills must also be demonstrated in the following areas:

The ability to install conduit using proper bending techniques; the ability to read and understand electrical schematics; the ability to install and repair lighting ballasts; the ability to connect and size three phase transformers; ability to use a Meggar and correctly troubleshoot motor power circuits to determine the condition of A.C. motors; the ability to wire and repair simple controls in a pumping plant environment; a basic understanding of Programmable Logic Controllers (PLC) and application to electrical controls.

Journey level performance in instrumentation and electronic work based upon demonstrated work record. This includes the ability to calibrate a transmitter using a 4-20 milliamp loop through an AGM control; a demonstrated working knowledge of DC and AC theory including problem analysis; the ability to understand and troubleshoot telemetry hardware problems in the field; ability to program an address into existing radio equipment; ability to troubleshoot and repair bubbler systems; and ability to perform smaller scale wiring and construction type projects, and to access and maintain accurate records pertaining to equipment maintenance and repairs.