

## **CONTROLS ANALYST**

*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 highly-skilled work in the areas of process automation control systems and process information networks; plans, designs, programs, installs and maintains Programmable Logic Controllers (PLC), Distributive Systems (DCS); Supervisory Control and Data Acquisition systems (SCADA), human machine interfaces (HMI) and related automation and control systems; implementation, and modification of central control systems, water treatment plant process control systems, RF and fiber-optic based communication systems, and field telemetry communications systems; acts as a project leader, coordinating, overseeing and inspecting the work of professional and technical staff; performs related duties as assigned.

### **DISTINGUISHING CHARACTERISTICS**

A Control Systems Analyst installs, repairs and maintains the reliability of network infrastructures and operating systems on multiple platforms for the District's PLC, SCADA, DCS, and Plant Information local area and wide area networks (LAN/WAN) to facilitate the automated operation of the District's water treatment plants, wells, boosters, control valves and other water production and distribution systems. Incumbents assist and train the District's end users to make effective use of process automation systems and process information networks to effectively accomplish District's and departmental goals.

### **SUPERVISION RECEIVED AND EXERCISED**

Direct supervision is received from Water Production and Controls Supervisor and/or Water Production Manager.

### **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.*

1. Installs, repairs and maintains the reliability of network infrastructures and operating systems on multiple platforms for the District's PLC, SCADA, DCS, and Plant Information local area and wide area networks (LAN/WAN); coordinates and participates in maintaining and enhancing process automation and network functionality; installs, upgrades, configures, integrates and maintains process automation and process information networks; installs, configures and supports network devices including PLC's, I/O networks, HMI's, workstations, printers, hubs and routers; configures and installs network cards; installs and configures applications to network systems.
2. Engineers, plans, coordinates, develops implements and maintains aspects of the District's SCADA systems and sub-systems and related functions.
3. Provides technical guidance, and participates in the development, implementation and maintenance

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of the District's radio communications, process control, supervisory control and telemetry systems.

4. Diagnoses control and network hardware malfunctions; performs maintenance and repair; coordinates repair of equipment under warranty with users and outside service repair technicians; replaces components and parts and changes out equipment when necessary to ensure the timely and accurate completion of preventive maintenance activities
5. Designs, develops and writes programs for new automation and enhancements to existing PLC's, computers, configurations and applications to facilitate operational requirements of the District's water treatment, production and distribution systems.
6. Ensures the timely and accurate completion of preventive maintenance activities.
7. Develops, evaluates, tests, installs, troubleshoots and modifies central control operator interface graphics, ladder logic, control and communication databases, application programs and system support scripts.
8. Performs a variety of difficult and complex tasks in the diagnoses, calibration, installation and troubleshooting of trunked radio systems, fiber-optic telecommunication system equipment, telemetry-based controllers, PLCs, and related systems, equipment and facilities, utilizing sophisticated electronic test and measurement instrumentation.
9. Reviews, modifies and reports on District specifications and design documents for new and existing District facilities as related to process control schemes, instrumentation, communication and SCADA, checking for compliance with District and industry standards.
10. Designs and develops requirements including researching data and preparing plan specifications and estimates for the purchase, installation, modification and testing of SCADA systems for District offsite facilities.
11. Performs programming using a variety of programming tools.
12. Performs and instructs others in the support, preventive maintenance and repair of control systems, electronic and computer systems, components, devices and equipment.
13. Designs, modifies, tests and implements software-based control and instrumentation logic.
14. Designs, installs, modifies and supports systems required for the transportation of electronic signals across a wide geographic area, primarily via radio frequency.
15. Prepares design specifications and material lists for telemetry, central and process control, and telecommunications equipment and systems; reviews manufacturers' and contractors' submittals for conformance with design specifications.

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16. System operation including: standby emergency response duties for after hours distribution system operational emergencies, operates pumps and related flow and pressure control and storage facilities manually or by using system control and data acquisition (SCADA) system, maintain and/or adjust system flow and pressure requirements, control flows to meet consumer demands including fire flow demands and minimum pressure requirements, determine and control proper chemical dosage rates for wellhead disinfection and distribution residual maintenance.
17. Calculates and adjusts chemical solution concentration and dosages. Design, implementation, and validation of chemical mixing, batching, and feed systems. Operation, installation, and calibration of online analyzers and instrumentation.

### **KNOWLEDGE, SKILLS AND ABILITIES**

#### **Knowledge of:**

Programmable Logic Controller (PLC) programming.  
Human Machine Interface (HMI) software configuration.  
Software, mechanical and electrical maintenance principles and practices.  
Principles and procedures of record keeping.  
Advanced mathematical principles.  
District control system equipment.

#### **Skill in:**

Operating a personal computer and related software.

#### **Ability to:**

Analyze complex maintenance problems and recommend solutions.  
Exercise independent judgment and initiative within established guidelines.  
Orient and train employees.  
Direct and guide the work of others.  
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 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.  
Work with other District department/divisions to reach a common goal.

### **REQUIRED QUALIFICATIONS**

#### **Experience and Training Guidelines**

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

#### **Experience:**

Five (5) years of progressively responsible, professional-level experience in the design, developing process control, implementation of process automation, control and telemetry systems, or an equivalent combination of training and experience.

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### **Training:**

Bachelors Degree from a college or university with a major in electronics, electrical engineering, computer science, or closely related field.

### **Certificate:**

Possession of a valid T2 Water Treatment Operator Certificate and a valid D2 Distribution Operator Certificate issued by the State of California Department of Public Health, or the ability to obtain certifications within 1 year of appointment.

CWEA Electrical/Instrumentation Grade III Certification is desirable.

ISA Automation Professional certification is desirable.

### **License:**

Possession of a valid Class C California driver's license and a satisfactory driving record.

## **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**

Incumbent frequently works in extreme outside weather conditions, near moving mechanical parts, and on slippery uneven surfaces. Frequent exposure to wet and/or humid conditions, fumes, or airborne particles, toxic or caustic chemicals, and risk of electrical shock. The noise level in the work environment is frequently loud. The employee works under both office and field conditions.

### **Physical**

While performing the duties of this job, the employee is regularly required to use hands to finger, 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; stoop, kneel, crouch or crawl. The employee must regularly lift and or move up to fifty (50) 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. Performing the duties of this class, the incumbent is regularly 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 deadline; and interact with officials and the public.

### **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 our without correction.

DATE ADOPTED:

DATE MODIFIED: November 2013

DATE MODIFIED: February 2016