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| Job Classification: | SCADA Technician I / II |
| Representation: | SEIU Local 1021 |
| Wage Schedule Range: | 19 / 21 |
| FLSA: | Non-exempt |
| Effective Date: | November 2009 |
| Revision Date: | February 2018 |

Classification specifications, i.e. Job Descriptions are intended to present a descriptive summary of the range of duties and responsibilities performed by an incumbent in the classification. Furthermore, specifications are not intended to reflect all duties and responsibilities of an incumbent in the classification.

Summary

Under general supervision Maintains, repairs, inspects, plans, modifies, designs, installs, and calibrates instrumentation and control systems (including computerized controls – SCADA, variable frequency drives, solid-state starters, programmable logic controllers, process control systems, and other microprocessor-based electronic and electrical equipment) for water and wastewater treatment. Maintains and repairs laboratory and chlorination equipment. Assists other employees in the operation and maintenance of instrumentation and control systems; perform other duties as assigned.

Supervision Received and Exercised

Supervision and direction are to be given by a Senior Supervisor of Electrical/SCADA, when such position is staffed. General direction is given by the Director of Operations or delegate specified to oversee this work. The SCADA Technician II may provide project-specific direction to SCADA Technician I staff or Electrician/Instrumentation Technician, but otherwise has no supervisory responsibilities. In the instance the District has filled the Senior Supervisor position of this class, said Senior Supervisor will oversee and direct the work of both the Electrician/Instrumentation Technicians and the SCADA Technicians.

Class Characteristics

The SCADA Technician Class is distinguished from the Electrician/Instrumentation class by the nature of work of the work that involves computerized systems and controls and communications equipment that will interface with such systems. SCADA Technicians shall be fully qualified electricians meeting the job level skills required at the Electrician/Instrumentation II level, but in addition have additional training, experience, and certifications that enable them to successfully install, calibrate, maintain, repair, modify, and plan computerized control system equipment.

SCADA Technician I: Under supervision and with direction will attain journey level proficiency in assigned instrumentation and/or communications equipment duties, areas of responsibility, knowledge and ability, through training and experience.

SCADA Technician II: Under minimal direction, provides journey level proficiency in installation, calibration, repairs and modification of assigned instrumentation and/or communication equipment. Assists and trains SCADA Technician I personnel in such duties at one or more treatment plants or other District facilities.

Essential Duties - *The following duties are typical for this position. Depending upon the assignment, the employee may not perform all of the listed duties and/or may be required to perform additional or different duties from those set forth below to address District needs and changing business practices. The omission of specific statements of duties does not exclude the position if the work is similar, related or a logical assignment to the class.*

- Installs, maintains, calibrates, and repairs micro-computer based data acquisition and control systems, including telemetering, monitoring, and process control equipment and instrumentation.
- Installs, maintains, and repairs multi-channel system radio and telephone, and calibrates microwave electronic equipment, antennas, battery back-up power supplies and ground systems including connections to existing systems.
- Utilizes test equipment including digital and analog ohmmeters, vibration meters, voltmeters, multimeters, amp meters, infrared pyrometers, digital analyzers, oscilloscopes, frequency counters, frequency generators, 35 MHz scope, RF wattmeter, 4-20 ma signal generator, logic analyzers, valve actuator gear trains; and other specialized test equipment.
- Performs basic Wonderware troubleshooting; upgrades software as necessary; ensures the entire District system is the current version of Wonderware. Manages and troubleshoots all RTUs and hubsites. Ensures treatment plants have backup programs and that they are functioning correctly.
- Regularly performs backup of all PLC programs District-wide. Ensures upload and download capability for all PLCs.
- Uses software diagnostic routines and tests equipment to verify and/or adjust control system equipment according to manufacturer's recommendations.
- Installs and mounts instrumentation systems related to electronics, instrumentation control, telemetry, telecommunications, hydraulics, pneumatics, and a variety of other systems; inspects installed systems to assure proper operation.
- Records and verifies accuracy of flow, temperature, pressure, and other measuring, recording, and transmitting devices used in water and wastewater treatment and laboratory equipment; performs physical and chemical testing to calibrate systems.
- Participates in the fabrication, mounting, and wiring of systems and devices.
- Maintains calibration, configuration control, preventive maintenance, and system integrity records required by internal and external directives; recommends calibration intervals; performs routine alignment and calibration on electronic equipment.

- Diagnoses, troubleshoots, updates and repairs malfunctioning systems and equipment, calibration problems and other measuring, recording, and transmitting device failures.
- Orders materials and electronic components for repairs and/or modifications at facilities.
- Interfaces with vendors, outside contractors, District, and other utility personnel on operations and repair of District equipment and facilities.
- Maintains records on parts inventories and identification of equipment.
- Establish and maintain an effective and cooperative working relationship with coworkers through knowledge of work, personal and professional conduct, and good judgment.
- Regular attendance and adherence to prescribed work schedule to conduct job responsibilities.
- Perform related duties as assigned or required for the ongoing operation of the District's business.

In addition to the above, the SCADA Technician II will perform the following duties and responsibilities:

- Monitors SCADA personal computers for database integrity and system performance.
- Oversees safe and efficient SCADA operations of one or more water/wastewater treatment plants, distribution facilities, as well as hydroelectric operations.
- Analyzes, troubleshoots, and resolves instrumentation and control system problems to ensure consistent, trouble free operation.
- Develops and updates as necessary procedures and practices for the proper utilization of computer-based systems to perform necessary operational functions.
- Reads blueprints, schematic drawings; makes redline corrections to as-built, construction drawings, etc.
- Creates and modifies computer programs, databases, logic and configurations; design and implement operational adjustments to enhance computer-based process and control systems.
- Participates in various studies to identify District control system needs and requirements.
- Assists in review of capital projects to ensure capability with existing and future control and instrumentation systems.
- Manages, coordinates and monitors special projects with outside contractors.
- Upon completion of in-house projects, produces drawings of modifications made; ensures recording of an electronic record of said drawing.
- Assists in planning for needed system upgrades, modifications, and replacements, including coordinating with other Departments.
- Where emergency response may be impacted by new installations, notifies safety/training officer and appropriate other(s) responsible for emergency action plans of new systems/equipment.

- Prepares reports and maintains records as required or directed.
- Provides training to operations staff to help understand system processes and alarm procedures.
- Plans and monitors preventive maintenance program.

Qualifications - Any combination of training and experience that would provide the required knowledge, skills and abilities is qualifying.

Knowledge of:

- Principles, methods, materials, tools, and equipment used in the installation, operation, maintenance, calibration, and modification of instrumentation and control systems;
- Electrical and electronic theory and practice as applied to process instrumentation and control equipment;
- Technical operation and maintenance of modern electronic devices;
- Instrumentation associated with water reclamation and water and wastewater treatment plants.
- Principles and practices of instrumentation calibration and alignment procedures;
- Power distribution, electronics equipment, and testing procedures; water and wastewater plant operations; reclaim pumping and storage; PLC based controls, radio, and telemetry methodology;
- Control system architecture;
- Computer applications related to the work, including telemetry and SCADA hardware and software.
- Basic principles of chemistry and physics;
- Safe work methods and safety regulations pertaining to the work.
- Arithmetic and basic mathematical calculations, including percentages and decimals.
- Principles and practices of effective customer service.
- Standard business practices such as letter writing, report writing, preparing informational materials in visual formats.
- Microsoft Office Suite programs for word processing and spreadsheets.
- English language usage, spelling, grammar, and punctuation.

Ability to:

- Install, modify, design, and repair equipment related to electronics, instrumentation, control telemetry, hydraulics, and pneumatics;
- Calibrate, align, and test a variety of processes;
- Read, interpret, and understand technical manuals, electronic schematics, blueprints, drawings, and diagrams;
- Plan and execute repair, maintenance, and installation of controls and electronic equipment;
- Use modern precision and diagnostic tools and instruments;

- Maintain accurate records of work performed.
- Adapt to changing technologies and learn functionality of new equipment and systems
- Plan, coordinate, and organize work to meet deadlines with accuracy, thoroughness, and attention to detail.
- Work independently and prioritize multiple tasks often under time constraints and with limited supervision.
- Read, understand and carry out written and oral directions in a clear, concise, and consistent manner.
- Operate a computer for the effective operation of the Department including word processing, database, spreadsheet, presentations, e-mail, internet and an integrated accounting software package
- Operate a variety of automated office machines typical of a work environment such as a multi-function printer/copier/scanner machine, and fax machine.
- Communicate clearly and concisely both orally and in writing with District staff, co-workers, consultants and the public in one-to-one and group settings.

In addition to the above, the SCADA Technician II will have the following abilities:

- Design, update, and fabricate new equipment and control systems;
- Troubleshoot quickly to minimize downtime;
- Perform programming as necessary to modify controls for improved operation.
- Document system functioning and update District as-builts as necessary; work with others for development and storage of electronic records.
- Prepare standards and qualification statements for purchases of equipment and/or services.
- Maintain records and write reports.

Education and Experience – *Any combination of education and experience which would likely provide the required knowledge, skills and abilities is qualifying. A typical way to obtain the required qualifications would be:*

SCADA Technician I: AA degree in Computer Science, or equivalent Instrumentation and control apprenticeship, or supplemented with specialized training or college level course work in electronics, instrumentation, and electrical theory that provides an apprentice level of knowledge and ability. No less than nine (9) years prior experience in commercial electrical work related to water/wastewater systems and facilities with the final three (3) years of this experience including troubleshooting, installing, and programming of instrumentation and programmable logic controls.

SCADA Technician II: AA degree in Computer Science, or equivalent Instrumentation and control apprenticeship, or supplemented with specialized training or college level course work in electronics, instrumentation, and electrical theory that provides an apprentice level of knowledge and ability. No less than twelve (12) years prior experience in commercial electrical work related to water/wastewater

systems and facilities with the final three (3) years of this experience including troubleshooting, installing, and programming of instrumentation and programmable logic controls and shall include three (3) years having served at the Controls/Communication Technician Level I or equivalent.

Licenses and Certifications

- California Distribution Grade I certification
- CWEA Electrical Instrumentation Grade 3 certification
- Valid California Driver's License issued by the California Department of Motor Vehicles

Physical Requirements

While performing the duties of this job, the employee is regularly required to walk long distances, stand, sit; exert considerable physical effort involving stooping/kneeling, pushing/pulling, climbing/balancing, lifting/carrying, bending, and performing other similar actions during the course of the workday. Incumbents require sufficient mobility to work in a field setting with exposure to a variety of weather conditions, slippery and uneven surfaces. While performing the job duties the incumbent is required to operate hand tools and equipment and transport materials and supplies weighing up to 95 pounds; use fine and gross motor coordination in using numerous maintenance, power, and hand tools, and equipment and machinery; reach with hands and arms; travel regularly by vehicle for District related duties; use standard office equipment such as computers, copiers, and FAX machines; hearing and vision within normal ranges with or without correction. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Work Environment

Work both indoors (generally in a typical office or warehouse setting) and outdoors are required. While performing the duties of this job outdoors, the working conditions are of a varying degree, from snow to extreme heat. Additionally, incumbents in this position will have exposure to cleaning supplies, solvents, dusts, and other outdoor environmental elements. While performing the duties of this job indoors, the working conditions are those of a typical office environment, with temperatures occasionally too warm or too cold, moderate noise levels and under lighting conditions typical of an office. Travel between District facilities will be necessary via District vehicle for District related duties and activities.

Additional Requirements:

- 18 years of age.
- Eligible to work in the United States.
- Must be available for regular weekly on-call, emergency standby, and to be called back and work emergency overtime as required.