MARIN MUNICIPAL WATER DISTRICT

Control Systems Administrator

DEFINITION

Under direction, plans, supervises and coordinates the work of the Controls unit. The incumbent in this position also performs a variety of more complex control system design and modification duties including planning, design, development, implementation, modification, and maintenance of the District's computer-based process control and SCADA systems; and to do related work as required.

DISTINGUISHING CHARACTERISTICS

This classification is a first line supervisor, reporting to the Assistant Superintendent of Distribution Systems Operations. This position requires the skill and ability to supervise a group of employees, design, develop, implement, modify, program and maintain computer-based process control and SCADA systems. As well as providing hands-on modification and maintenance to these systems, the position is responsible for designing and managing SCADA local area networks (LAN), wide area networks (WAN) with a variety of communication technology and equipment including radios, fiber-optic, high speed data lines, network routers, network switches, and firewalls. Ability to manage cyber security for the District's SCADA and control systems is highly desired. The level of independence exercised by the Control Systems Administrator and supervisory duties distinguishes this class from the Controls Technician. The Control Systems Administrator serves as the technical expert on the District's control systems. Employees at this level receive only occasional direction or assistance as new or unusual situations arise, and possess a full understanding of the operating procedures and policies within the work unit.

EXAMPLES OF DUTIES

Typical duties may include but are not limited to the following:

- Plans, assigns, supervises, coodinates and participates in the work of the Controls unit;
- performs a variety of complex control system duties including planning, design, development, implementation, modification, and maintenance of the District's computer-based process monitoring and control systems;
- prepare control systems specifications, drawings, sketches, and other supporting documentation for proposed projects;
- update and maintain technical specifications and documentation for the District's SCADA and control systems;
- provide support for District control systems engineering installation projects; assist in the inspection of contractor installations as necessary; provide technical support during project installation, including design changes, submittal review and request for information from contractors;
- work closely with Controls Technicians in providing support, training and assistance for difficult and complex control systems projects and repairs;

- perform SCADA and control systems network administration duties such as configure, program, test, install, and maintain networked control systems, connect peripherals to system; monitor system integrity;
- provide technical hardware and software support to users; identify, diagnose, and resolve technical problems;
- participate in the design or modification of computer or programmable logic controllers (PLC) programs used in process control or SCADA systems;
- program, install, and maintain PLC;
- install, maintain, and repair telemetry communication devices, such as modems, celluelar modems, digital service units, and 900 MHz MAS radios;
- serve as technical resource on control systems problems at the District's water treatment and distribution facilities;
- analyze, troubleshoot and repair electronic instrumentation, and control system hardware or software;
- review drawings, plans, and other work submitted by consultants, engineers, and contractors for conformance with District specifications and standards; and
- prepare accurate and clear reports and compose correspondence and maintain appropriate records including standard operating procedures.

QUALIFICATIONS FOR EMPLOYMENT

Knowledge of:

- Principles and practices of supervision, training and personnel administration;
- principles and practices utilized in the design, application, and modification of a variety of electronic, process monitoring, process control, and related computer-based systems, instrumentation and equipment;
- telecommunications transmission principles and equipment;
- programming as applied to SCADA systems;
- programming and maintaining of PLCs;
- control system theory and design concepts for electronic process control systems;
- operational characteristics of electronic control systems hardware and software;
- operational characteristics of local area networks and supporting platforms;
- operational characteristics of specialized test equipment used to diagnose and troubleshoot control systems malfunctions;
- principles and practices of control systems network administration;
- pertinent Federal, State, and local laws, codes, and regulations;
- English composition and proper spelling, grammar, punctuation;
- applicable District rules and regulations.

Ability to:

- Design and modify various control system software and hardware;
- analyze control systems and telemetry system requirements, and recommend solutions;
- review control system designs, drawings, specifications, and other engineering project documentation;
- read, interpret, and work from plans and specifications;
- develop, read and analyze PLC software;
- conduct technical research work, make detailed analyses and write reports;
- provide technical support to operations maintenance staff;
- perform accurate engineering calculations;

- perform SCADA and control systems network administration duties;
- use sound judgment in unusual and emergency situations;
- communicate clearly and concisely, both orally and in writing;
- perform complex control system work and exercise a high level of independent judgement;
- perform the full range of duties listed in the Example of Duties listed above;
- travel to alternative work locations and off-site meetings; and
- drive a vehicle.

Training and Experience: Any combination equivalent to experience and education that could likely provide the required knowledge and abilities would be qualifying. A typical way to obtain the knowledge and abilities would be:

- A Bachelor's degree from an accredited college or university with major course work in control systems engineering, electronics or computer science, or a related field, and two years' experience planning, designing, developing, implementing, modifying or maintaining SCADA systems and computerized control systems and including two years in lead capacity.
  OR
- An Associate degree from an accredited college or university with major course work in control systems engineering, electronics or computer science, or a related field, and four years experience planning, designing, developing, implementing, modifying or maintaining computerized control systems and including two years in a lead capacity.
  OR
- Completion of the twelfth grade or its equivalent, and six years of experience planning, designing, developing, implementing, modifying or maintaining computerized control systems and including two years in a lead capacity.

OTHER REQUIREMENTS

- Per California Government Code, Title 1, Division 4, Chapter 8, Section 3100 "all public employees are hereby declared to be disaster service workers subject to such disaster service activities as may be assigned to them by their superiors or by law."
- Work on an "on call" basis for emergency situations.

LICENSES AND/OR CERTIFICATIONS

- Pass a "D1" Distribution Operator's Examination and obtain a California State Water Resources Control Board (SWRCB) "D1" Operator Certificate within one year of date of appointment.
- Possession of an appropriate California driver's license issued by the State Department of Motor Vehicles and satisfactory driving record.

PHYSICAL DEMANDS AND WORKING CONDITIONS

During the course of performing job duties the employee will perform heavy physical work and will need the mobility to operate equipment, which may include office and/or field equipment, or specialized instruments or tools requiring repetitive arm/hand movement and/or the coordinated movement of more than one limb simultaneously; enter and retrieve data from personal computers and terminals via keyboards. The employee frequently stands, walks, bends at neck and waists, twists at neck and waist, uses simple and power grasping with both hands, uses fine manipulation of both hands and fingers, and may require use of the arms above the shoulder, climb or balance; stoop, kneel or crouch. While working in the field the employee may walk on uneven or un-level ground surfaces such as hills, slopes, ditches or trenches, on or in tanks, and may work at heights

up to ten to twelve feet climbing ladders or stairs. The employee is frequently required to lift and carry short distances objects such as materials or equipment weighing up to 10 to 50 pounds and occasionally lift 50 to 75 pounds. This position requires that the employee demonstrate adequate hearing to detect warning alarms and speech to converse in person and over the telephone or radio, and vision to read printed materials and detect color coded materials, and use a computer screen.

The noise level in the work environment is moderate to loud noise. The employee is exposed to moving vehicles and other moving equipment and machinery, excessive noise, extremes in temperature, humidity, wetness and dust. The position may require the ability to work overtime and weekends as needed.

Employees who drive on District business to carry out job-related duties must possess a California driver's license for the class of vehicle driven and meet automobile insurability requirements of the District including review of a recent DMV history. In order to drive, individuals must be physically capable of operating the vehicles and equipment safely.

ADDITIONAL PHYSICAL DEMANDS

- Respiratory protection may be required in some situations for example, when working in confined spaces and the employee must be capable of obtaining and maintaining a proper facial seal for District respiratory equipment.

To be successful in this job, an individual must be able to satisfactorily perform each of the listed duties. These duties are representative of the knowledge, skill and/or ability required for the position. Reasonable accommodations may be made to enable individuals with disabilities to perform the duties and functions of the position. Requests for reasonable accommodation should be directed to the Human Resources Manager.

Established: June 2003
Revised: June 2020
Approved by: Human Resources Manager