

HUMBOLDT COMMUNITY SERVICES DISTRICT JOB DESCRIPTION:

SPECIAL PROJECTS/ELECTRICAL and INSTRUMENTATION TECHNICIAN

Effective: October 10, 2023

Definition:

Under general supervision of the General Manager or Engineer, this regular full-time non-exempt hourly classification performs a full range of electrical, electronic, and electro-mechanical tasks including design review, implementation, assembly, deploying, commissioning, trouble-shooting, maintaining and upgrading/improving various systems, and performs other related duties as required.

Distinguishing Characteristics

The Electrical and Instrumentation Technician possesses an advanced level of knowledge and experience, as well as confidence to perform a wide variety of duties including installation, maintenance, troubleshooting, repairing, adjusting, programming and calibrating a variety of electrical, electronic, and electro-mechanical equipment, Supervisory Control and Data Acquisition (SCADA) system equipment, programmable logic controllers (PLC's), Remote Terminal Units (RTUs), SCADA server's, wireless and radio communications systems, water and sewer pumps, control panels and telemetry systems.

Essential Duties:

Install, inspect, maintain, repair, troubleshoot, calibrate, program, modify, upgrade and test a wide variety of electrical/electronic/electro-mechanical instrumentation equipment and software related to pumping stations, water storage, water treatment, emergency back-up power, and SCADA systems; systems may include, transmitters, recorders, PID loop controllers, atmosphere testers, PLCs, remote telemetry units (RTU's), ultrasonic meters/sensors, network servers, related communication devices (radios and antennas), soft start equipment, variable frequency drive (VFD) systems and pneumatic and telemetry equipment; verify equipment compatibility with existing devices; proficiently reads and interprets circuit diagrams, such as, electrical schematics, piping and instrumentation diagrams (P&ID's), ladder logic, function block diagrams, construction drawings, and service and repair manuals; prepares plans and specifications for the procurement of parts and supplies on assigned projects. Ensures that proper safety precautions and safe work methods are followed; assists with the preparation of standard operating procedures (SOP's); inspect contract construction projects and submittals; inspect and test equipment; develop punch lists for work to be completed or corrected during construction; and perform other duties as assigned. Regular, predictable, consistent and timely attendance is an essential function of the position, in that the failure of such attendance undermines the District's ability to provide critical public services impacting public health.

Knowledge/Skill/Ability:

Knowledge of: In depth knowledge of electrical/electronic/electro-mechanical instrumentation equipment as it relates to SCADA systems, industrial controls, communication devices, telemetry, and their operational and maintenance software programs; methods, tools, and equipment used to install, deploy, commission, maintain, repair, test, troubleshoot, calibrate

and perform preventative maintenance on electrical, electronic, electro-mechanical, instrumentation and SCADA systems; safe work practices, applicable codes, laws and ordinances, circuit diagrams, and shop mathematics

Skill to: Use electrical and electronic tools and equipment skillfully and safely; read, interpret and follow electrical and process control plans and specifications; examine and diagnose causes of electrical and electronic failures; respond quickly in emergencies; interact effectively and courteously with the public; communicate clearly and concisely, orally and in writing; keep accurate records.

Ability to: Work independently and exercise good judgment; diagnose malfunctions in a variety of electrical, electronic, electro-mechanical, SCADA and instrumentation systems; use and care for tools and test equipment used in maintaining and repairing electrical, electronic and instrumentation systems; ability to create new, and modify existing computer aided design (CAD) documents; make cost estimates of labor and materials, maintain detailed records; follow oral and written directions. read and interpret electrical and process control drawings, plans and specifications; Establish and maintain effective work relationships with those contacted in the performance of required duties; maintain effective audio-visual discrimination and perception needed for making observations, communication with others, and reading, writing, and operating assigned equipment; apply good judgment and practical knowledge to help resolve unusual or irregular problems in the area of work assigned.

Examples of Knowledge/Skill/Ability:

- Principles and practices of electrical and electronic repair and maintenance
- Repair, maintenance, and operational adjustment procedures for water and sewer pumping, water distribution, sewer collection, and water treatment plant equipment
- Methods, materials, tools, and testing equipment used in the installation, maintenance, calibration, and repair of electrical and electronic equipment
- Measuring, monitoring, and calibrating devices used in electrical, mechanical, instrumentation, and relay troubleshooting and repair
- Repair and calibration of instrumentation and relays
- Experience with the implementation, operation, maintenance, and troubleshooting of SCADA Systems
- Experience with the programming of SCADA servers, PLCs RTUs and HMIs and the associated programming software such as Schneider Electric's Remote Connect, Control Expert, Geo-SCADA, Clear-SCADA, ViewX, Virtual ViewX and iX Developer.
- Experience with wired and wireless telemetry technologies and the troubleshooting and maintenance methods employed with them
- Experience with project development, specification and interconnection CAD work associated with the implementation of new equipment and or control technologies
- Safety laws, regulations, and rules relating to electrical system and electronic maintenance and repair work.
- Safe work practices including necessary electrical clearances and lockout / tagout procedures
- Operation of computers, automated equipment and standard applications software
- Develop cooperative working relationships. Use teamwork to effectively solve practical problems, and coordinate work among a small, close-knit workforce

Education and Experience:

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

- High school diploma or GED
- Associate degree in electronics, instrumentation, electrical technology, or closely related field is highly desirable.
- Five-to-ten years of journey-level experience as an Industrial Instrumentation and Control Technician, electrical and electronic construction, repair and maintenance, preferably with some direct experience at a water or wastewater treatment plant, hydro-electric plant, or similar facilities. Completion of a formal apprenticeship or its equivalent in the electrical, electronics, or instrumentation fields are highly desirable.
- Grade II Treatment and/or Distribution certificates desirable
- California Water Environment Association (CWEA) Electrical/Instrumentation Technologist Level II certification or higher is highly desirable

Special Requirements:

- Must possess a valid California Driver's license issued by the State Department of Motor Vehicles to perform the essential duties of the position. Job incumbents must maintain a driving record acceptable to the District and its insurance carrier. Compliance with these requirements and established District vehicle operation standards are a condition of continuing employment.

Working conditions/Physical Requirements:

Individuals selected for appointment to this position must pass a pre-employment medical examination and drug screening at District expense. The medical examination and drug screening is intended to evaluate the applicant's ability to meet the physical and health requirements for this classification.

Sensory Requirements: Requires the ability to recognize and identify similarities and differences between shade, degree or value of colors, shapes, sounds, forms, textures or physical appearance associated with objects and people

Environmental Factors: May be subjected to moving mechanical parts, electrical currents, vibrations, fumes, odors, dusts, gases, poor ventilation, chemicals, oils, extreme temperatures, work space restrictions, intense noises, and environmental dangers.

A person employed in this position must be able to:

- Investigate and solve complex problems involving the ability to:
 - Perform visual inspections
 - Hear normal versus abnormal noises
 - View and respond to operational control screens (including alarms)
 - Think critically
- Sit for extended periods of time

- Operate a desktop computer
- Operate motor vehicles and other equipment
- Operate a variety of hand and electric tools
- Perform a variety of physical activities which may involve reaching, bending, squatting, kneeling, crouching, crawling, and climbing, and also manual dexterity
- Perform additional physical activities to position or move tools, equipment, and supplies which may involve lifting, and pushing or pulling motions
- Wear a respirator and other personal protective equipment
- Understand and carry out oral and written directions
- Communicate well with others, both verbally and in writing
- Work cooperatively and get along well with other people
- Read and understand complex electrical diagrams and communicate electrical processes contained is such diagrams
- Draw electronic diagrams and communicate electrical processes contained is such diagrams

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."

Employee Acknowledgement

I acknowledge and understand that receipt of this job description provides a general summary of the position in which I am employed, that the contents of this job description are job requirements and, at this time, I know no limitations which would prevent me from performing these functions with or without reasonable accommodation. I further understand that it is my responsibility to inform the General Manager at any time that I am unable to perform these functions.

The specific statements shown in each section of this job description are not intended to be all inclusive. They represent typical elements and criteria necessary to successfully perform the job. Job duties, tasks, work hours, and work requirements may be changed at any time. Acceptable job performance includes completion of the job responsibilities as well as compliance with the policies, procedures, rules and regulations of the District. My signature below confirms that I have read and understand this job description.

I have received and read this Job Description, fully understand it and freely agree to its terms.

Dated _____

Employee Signature _____