

ENCINA WASTEWATER AUTHORITY

DATE: August 2022
POSITION TITLE: Electrical and Instrumentation Specialist
DEPARTMENT: Technical Services
REPORTS TO: Maintenance Manager
FLSA STATUS: Non-exempt

POSITION SUMMARY: Under the direct or general supervision of the Electrical and Instrumentation Supervisor, this position: inspects, tests, programs, services, troubleshoots, and performs a variety of assignments in the maintenance, repair, and installation of electrical and instrumentation equipment, process controls, monitoring equipment at the Encina Water Pollution Control Facility (EWPCF), Remote Facilities (Agua Hedionda Pump Station, Buena Vista Pump Station, Buena Creek Pump Station, Raceway Basin Pump Station, and Carlsbad Water Recycling Facility (CWRF); or Resource Recovery (biosolids handling and recycling, alternative fuels, and cogeneration); performs predictive, preventative and corrective maintenance activities; assists contractors as necessary and performs other related duties as assigned.

SUPERVISORY DIMENSIONS: None

ESSENTIAL JOB DUTIES:

The duties listed below are intended only as illustrations of the various types of work that may be performed.

- Promote the Authority's Mission, Vision, and Values.
- Designs, installs, tests, adjusts, modifies, and maintains digital and logic circuitry, microprocessor-controlled devices and elements, such as programmable logic controllers, process control equipment, telemetering devices, recorders, sensors, alarms, and controllers on water and wastewater treatment process instruments and devices.
- Ensures safe, effective, and efficient methods of operating and maintaining hand and power tools, electrical system testing equipment and meter calibration instruments.
- Recognizes malfunctioning equipment and uses advanced troubleshooting methods and skills to diagnose, analyze, recommend, and complete required repairs.
- Maintains various electrical, pneumatic, and electronic controls, alarm and telemetry systems, programmable controllers, and related equipment.
- Prepares purchase requests for parts and materials; contacts vendors for pricing of specialized parts and services; and oversees and inspects work performed by outside vendors.

- Works with contractors and vendors to solve problems regarding installation of new, and repair of existing, equipment and control systems.
- Assists in the programming, corrective and preventive maintenance on the authority's SCADA system computers including servers, radio communication systems, mobile devices, telephone systems, networking and other telemetry and control systems.
- Troubleshoots and resolves SCADA programming problems and assists in writing programs for new or enhanced SCADA functions; assists in troubleshooting system wide issues by tracing failed function from source to destination.
- Provides technical support in developing SCADA screens for the purpose of monitoring operational processes and field equipment; works with Systems Specialists and Operators to test system performance.
- Upgrades, maintains, and ensures consistent, reliable operation of critical power (up to 12kV) generation and distribution control systems including PLCs, power quality monitors (PQM), protective relays, HMIs, and RTUs.
- Generates programming documentation and preventative maintenance reports.
- Assists in budget preparation with recommendations to include requirements, tools, equipment, contract services, warehouse spare parts, and future plant and remote facilities capital expenditures.
- Performs corrective maintenance by inspecting equipment, checking voltage and amperage, tightening, and cleaning equipment and locating potential problems.
- Performs electrical circuit installation for additions or modifications by bending and installing conduit, pulling wire, wiring circuits as shown on blueprints, and testing systems for proper installation.
- Performs installations of process control components, panels, cables, instruments, and electrical additions or modifications. Installs conduit, parts, equipment, pulls wire, and terminates per design, blueprint, specifications and/or general guidance; calibrates instruments and systems, corrects any failures, and ensures their proper operation.
- Maintains and updates all electrical drawings, schematics and single line drawings, all applicable documents including software and application programs, instrumentation loop drawings, and piping and instrument drawings (P&ID).
- Performs predictive, preventive, and corrective maintenance on uninterruptible power supplies (UPS) and DC power systems.
- Responds to emergency situations as necessary, including after normal business hours, weekends, and holidays.
- Maintains accurate documentation of parts and materials withdrawn from inventory.

- Proficient in microcomputer fundamentals and Microsoft Office applications, i.e., Access, Excel, Word, PowerPoint.
- Drives Authority vehicles, operates forklifts, utility carts, and other such equipment as required.
- Performs other tasks for the organization as needed.

Specific types of knowledge, skills and physical abilities required for these duties:

- Knowledge of calibration methods and standards.
- Knowledge of the safe and proper use of various hand and power tools, test meters and equipment to troubleshoot, repair, adjust and perform preventative maintenance on pneumatic and electronic process controls and measurement systems, instrumentation systems, electronic meters, programmable controllers, and related equipment.
- Ability to read and interpret computer logic diagrams, programming guides, electrical drawings, control loop diagrams, schematics, blueprints, maintenance manuals, technical bulletins, ladder diagrams, troubleshooting guides and preventive maintenance instructions.
- Ability to use frequency monitors, programmers, counters, calibration software and hardware, oscilloscope, personal computer, and signal generators to diagnose, repair and calibrate defective electrical, electronic, and pneumatic components and subassemblies.
- Principles of electrical and electronic technology principles and practices, theory and design as applied to electrical circuits and wiring systems.
- Methods and techniques of maintaining, installing, and repairing electrical systems and equipment including process control instrumentation.
- Ability to detect and correct controller programming errors and program digital and smart devices.
- Ability to generate accurate and effective maintenance records, status reports, data and maintenance logs and effectively respond to oral directions and requests.
- Ability to be medically authorized to be fitted for and wear a respirator in accordance with the Authority's Respiratory Protection Policy.
- Ability to withstand strenuous physical activities for extended periods of time including lifting, bending, carrying, crawling, and climbing.
- Ability to withstand exposure to varying weather conditions, work in wet and/or odorous areas, and work in confined areas, tanks, and structures.
- Ability to respond to 24-hour call-ins, work varying hours, weekends, holidays, and days off, and perform stand-by duty as needed.
- Ability to establish and maintain cooperative working relationships that foster a team approach.

EDUCATION REQUIREMENT: Graduation from High School or equivalent. Training in electrical troubleshooting and repair or equivalent knowledge gained by experience.

EXPERIENCE REQUIREMENT: Three (3) years of progressively responsible experience in the maintenance, repair, rebuild, and service of electrical, instrumentation, and control systems found in the wastewater industry or closely related field.

LICENSE REQUIREMENT: Possession of a valid California Class C Driver's License and ability to be insured under the Authority's automobile insurance coverage. Note: Failure to maintain a valid California Driver's License constitutes possible cause for termination.

CERTIFICATION REQUIREMENT: Possession of a valid Grade II California Water Environment Association (CWEA) Electrical/Instrumentation Technologist certification or the ability to obtain certification within 12 months of appointment to the position and maintenance of the certification in an active status.

PHYSICAL AND MENTAL DEMANDS:

Physical Demands

While performing the duties of this position, the employee is regularly required to walk; talk or hear by telephone and in person; sit; smell; use hands and fingers to handle, feel or operate objects, tools, or controls; reach and lift with hands or arms.

Specific vision abilities required by this job include close vision, distance vision, the ability to distinguish colors and shades, depth perception, and the ability to adjust focus. The employee must regularly lift and move up to 50 pounds.

Mental Demands

While performing the duties of this position, employees are regularly required to use oral and written communication skills; read documents or instructions; analyze and solve problems; observe and interpret data or information; use mathematical reasoning; learn and apply new information or skills; perform detailed work; work under changing, intensive deadlines with constant interruptions; and perform multiple concurrent tasks.

WORK ENVIRONMENT: While performing the duties of the job, the employee may be exposed to toxic or hazardous chemicals. The noise level in the work environment is quiet to loud. Hearing protection is required in some work areas.

RESPIRATORY PROTECTION POLICY/PROGRAM REQUIREMENT: This position must comply with the Authority's Respiratory Protection Policy & Procedures, which requires the use of respirators when conducting specific tasks.