



ENCINA WASTEWATER AUTHORITY

DATE:

POSITION TITLE: Electrical and Instrumentation Technician

DEPARTMENT: Technical Services

REPORTS TO: Maintenance Manager

DISCLAIMER: 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.

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.
- Design, install, test, adjust, modify, and maintain 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.
- Ensure safe, effective, and efficient methods of operating and maintaining hand and power tools, electrical system testing equipment and meter calibration instruments.
- Recognize malfunctioning equipment and uses advanced troubleshooting methods and skills to diagnose, analyze, recommend, and complete required repairs.
- Maintain various electrical, pneumatic, and electronic controls, alarm and telemetry systems, programmable controllers, and related equipment.

- Prepare purchase requests for parts and materials; contact vendors for pricing of specialized parts and services; and oversee and inspect work performed by outside vendors.
- Work with contractors and vendors to solve problems regarding installation of new, and repair of existing, equipment and control systems.
- Assist 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.
- Troubleshoot and resolve SCADA programming problems and assist in writing programs for new or enhanced SCADA functions; assist in troubleshooting system wide issues by tracing failed function from source to destination.
- Provide technical support in developing SCADA screens for the purpose of monitoring operational processes and field equipment; work with Systems Specialists and Operators to test system performance.
- Upgrade, maintain, and ensure 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.
- Generate programming documentation and preventative maintenance reports.
- Assist in budget preparation with recommendations to include requirements, tools, equipment, contract services, warehouse spare parts, and future plant and remote facilities capital expenditures.
- Perform corrective maintenance by inspecting equipment, checking voltage and amperage, tightening, and cleaning equipment and locating potential problems.
- Perform 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.
- Perform installations of process control components, panels, cables, instruments, and electrical additions or modifications. Install conduit, parts, equipment, pulls wire, and terminate per design, blueprint, specifications and/or general guidance; calibrate instruments and systems, correct any failures, and ensure their proper operation.
- Maintain and updates all electrical drawings, schematic and single line drawings, all applicable documents including software and application programs, instrumentation loop drawings, and piping and instrument drawings (P&ID).
- Perform predictive, preventive, and corrective maintenance on uninterruptible power supplies (UPS) and DC power systems.
- Respond to emergency situations as necessary, including after normal business hours, weekends, and holidays.

- Maintain accurate documentation of parts and materials withdrawn from inventory.
- Proficient in microcomputer fundamentals and Microsoft Office applications, i.e., Access, Excel, Word, PowerPoint.
- Drive Authority vehicles, operate forklifts, utility carts, and other such equipment as required.
- Perform other tasks for the organization as needed.

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: A minimum of three (3) years of experience performing a variety of troubleshooting, corrective repairs, preventative maintenance tasks and adjustments to the types of electrical, instrumentation and motor controls found in a wastewater treatment plant or industrial environment. Experience with programmable logic controllers (PLC) is desirable.

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 or insurability may constitute 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.

WORKING HOURS: Flex Schedule: Monday through Thursday 6:30 A.M. - 5:00 P.M. (4/10); or, as assigned by the supervisor.

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.