CITY OF SANTA CRUZ
WASTEWATER FACILTIES INSTRUMENTATION
TECHNICIAN I/II

Reports to	Wastewater Facilities Electrical/Instrumentation Supervisor
Supervises	Non-supervisory
Bargaining unit	Service

BASIC FUNCTION

Under general direction, the Wastewater Facilities Instrumentation Technician I/II performs a variety of instrumentation and controls maintenance work in the Public Works Wastewater Systems division on the City's wastewater treatment plant, wastewater collections system, and remote facilities.

DISTINGUISHING CHARACTERISTICS

The *Wastewater Facilities Instrumentation Technician I* is the entry level classification of the alternately staffed Instrumentation Technician series in which incumbents are expected to perform routine preventative and minor repair to instrumentation and control systems and support electrical maintenance. Incumbents assist journey-level electrical and/or instrumentation technicians or other personnel in a variety of more complex work initially under direct supervision. This classification is distinguished from the next higher classification of Wastewater Facilities Instrumentation Technician II in that the latter is the journey level classification in the series and is expected to independently perform the full scope of assigned duties under general direction.

The *Wastewater Facilities Instrumentation Technician II* is distinguished from the next higher classification of Wastewater Facilities Electrical/Instrumentation Supervisor in that the latter is the supervisory, advanced journey-level classification responsible for the supervision of staff and full range of instrumentation and electrical projects as well as the performance of the most complex duties assigned to the Electrical Technician series.

The Wastewater Facilities Instrumentation Technician I/II is alternately staffed. The Wastewater Facilities Instrumentation Technician I is required to obtain a California Water Environment Association (CWEA) Plant Maintenance (PM) Technologist Grade 1 certification within 18 months of date of appointment. Upon obtaining this certification and meeting the minimum experience requirements, an incumbent will be promoted to the II classification. The Wastewater Facilities Instrumentation Technician II is required to obtain the CWEA PM Electrical/Instrumentation Technologist Grade 2 certification within 12 months of date of appointment.

TYPICAL DUTIES *(May include, but are not limited to, those duties listed below.)*

- Assures that plant instrumentation equipment is maintained and repaired properly to provide reliability, economy, and safety.

- Installs, services, tests, repairs, maintains, and replaces electrical/electronic equipment including conduits, ducts, raceways, transformers, electrical and electronic circuits, and telemetering equipment.
- Installs, maintains, repairs, and calibrates all direct and remote instrumentation and related equipment required in pumping, metering, and treatment for telemetry and supervisory control and data acquisition (SCADA), electromechanical and electronic transmitters and receivers, differential pressure producing flow meters, timers, and alarms; uses portable computers to troubleshoot and repair instrumentation/equipment.
- Performs field maintenance, installation, and repair on control panels or switches on motors, generators, light and power circuits, telemetry equipment, measuring devices, flow transmitters, timers, alarms, and other related devices.
- Checks, repairs, calibrates, and analyzes recording, electronic, or pneumatic controls and instrumentation; maintains records of calibrations.
- Performs preventive maintenance using a computerized maintenance management system (CMMS) or other computerized monitoring and operating systems; tests for defects; removes, replaces, and repairs worn or defective control wiring and other related devices interacts with Operators to ensure equipment is fully operational.
- Learns and applies various programming languages necessary for utilizing the SCADA system for instrumentation control, including programming programmable logic controllers (PLCs) ladder logic and applicable SCADA interfaces.
- Reviews blueprints and works with engineers and contractors; provides recommendations and plans for installations, modifications, etc; designs systems; builds special electronic equipment and control loops.
- Trouble shoots new equipment and works with appropriate vendors to learn functionality and how to maintain and repair.
- Maintains records of instrument repair and inventory control of parts, materials, supplies, and equipment; requisitions supplies for electronic instrumentation maintenance as necessary.
- Prepares reports and maintains records, such as preventive maintenance tests and repairs.
- Makes recommendations for adjustments to standard operating procedures to improve effectiveness and comply with regulatory changes as appropriate.
- Reviews and prepares work orders and inspect locations where work is to be performed, noting special equipment needs and difficulties which may be encountered; performs inspections and confirmations on various electronic instrumentation system repairs and installations; orders necessary equipment and materials.
- Occasionally leads a small crew of workers in work assignments.
- May be assigned to special projects, such as serving as liaison with Wastewater Division employees, contractors, inspectors, etc. on operational and maintenance projects, treatment improvements, equipment upgrades, etc.
- May assist in training new personnel as required.
- May assist electrical technicians in trouble-shooting, repairs, and maintenance.
- Performs other related duties as assigned.

WORKING CONDITIONS

Position requires prolonged sitting, standing, walking on level and slippery surfaces, reaching, twisting, turning, kneeling, bending, stooping, squatting, crouching, grasping and making repetitive hand movement in the performance of daily duties. The position also requires both near and far vision when inspecting work and operating assigned equipment. The need to lift, carry and push tools, equipment and supplies weighing up to 100 pounds while wearing respiratory protection equipment is also required. Additionally, the incumbent in this outdoor position works in all weather conditions, including wet, heat and cold. May use chemicals and cleaning products which may expose the employee to fumes, dust and air contaminants. The nature of the work may also require the incumbent to climb ladders, use power tools and noise producing tools and equipment, drive motorized vehicles and heavy equipment, work in heavy vehicle traffic conditions and enter confined spaces. Depending on assignment, the incumbent may be required to respond to after hours emergency call outs and to wear a uniform. An incumbent may perform assigned duties while wearing respiratory protection equipment and/or Arc Flash safety equipment. Some of these requirements may be accommodated for otherwise qualified individuals requiring and requesting such accommodations.

MINIMUM QUALIFICATIONS

Knowledge:

- Standard terms, practices, and procedures associated with instrumentation duties.
- Installation, maintenance, troubleshooting, repair, operation and testing of electronic equipment, such as motors, circuits, instrumentation, PLC's, telemetry systems, and recording and metering devices.
- Programmable logic controllers.
- Automatic and computerized regulation and control devices.
- Applicable Federal, State and local laws, codes, and regulations.
- Software programs related to programming instrumentation controls.
- Theory and practice of instrumentation related to electrical design, installation, repair, overhaul, maintenance, testing and troubleshooting of high, medium, and low voltage systems and equipment and electrical motors.
- Pneumatic, hydraulic, electronic, and electro-mechanical systems.

Abilities:

- Analyze complex instrumentation issues and develop and implement an appropriate response.
- Plan, organize, prioritize, schedule and follow-up on work assignments.
- Interpret, explain, and apply applicable policies, procedures, laws, codes and regulations.
- Learn theory and practice of troubleshooting and repairing instrumentation related to co-generation systems and emergency generator systems.
- Perform mathematical calculations.
- Estimate time, labor, and materials for proposed work.

- Read and interpret electrical and instrumentation control sketches, drawings, diagrams, plans, specifications, construction diagrams, and technical manuals.
- Recognize unusual or dangerous operating conditions and make sound judgments within established guidelines.
- Prepare and maintain accurate, detailed records and reports.
- Use a computer and related software applications.
- Observe safety principles and work in a safe manner.
- Safely handle hazardous materials.
- Follow oral and written directions.
- Communicate clearly and concisely, both orally and in writing.
- Establish and maintain effective working relationships with others.
- Work effectively as a member of a crew.
- Lead a small crew of employees.
- Act in a courteous and tactful manner with members of the public.
- Perform assigned duties while wearing respiratory protection or ArcFlash safety equipment.

OTHER REQUIREMENTS

- Willingness to work flexible hours, including holidays, evenings, weekends, split shifts, and overtime as assigned.
- Must reside within a 45-minute response time by the end of the probationary period.
- Must successfully complete the city's respirator fit testing protocols; may be required to be clean shaven.
- Willingness to perform call back work and standby duty as required; must remain available to be contacted by phone or pager and be able to report to work within a 45-minute period when standing duty.
- Willingness to wear a uniform.
- Successful completion of training as a forklift operator within one year of appointment.

EDUCATION AND EXPERIENCE

Any combination of education and experience that provides the knowledge, skills, and abilities shown above is qualifying. A typical way to obtain the required qualifications is to possess the equivalent of the following:

Wastewater Facilities Instrumentation Technician I

- High school diploma or G.E.D., and
- 1 year of instrumentation experience that includes the application and maintenance of process automation and control in wastewater/water treatment or other industrial environment.

Wastewater Facilities Instrumentation Technician II

- High school degree or G.E.D. equivalent, and either
- 4 years of experience in instrumentation installation and repair work which included the application and maintenance of process automation and control in wastewater/water treatment or other industrial environment., or
- 2 years of experience (as defined above), with 1 of those years at the training level with a CWEA Grade 1 certification.

Additional higher level education, such as completion of an Instrument Technician program or an A.A. degree in instrumentation technology or engineering technology, may be substituted for experience for applicants that do not have any CWEA certification.

LICENSES/CERTIFICATES

- Possession at time of appointment and continued maintenance of a California Class C driver's license and a good driving record.
- Possession and continued maintenance of First Aid and CPR certification within one year.

Wastewater Facilities Instrumentation Technician I

- Must obtain and maintain within 18 months of date of appointment a CWEA Plant Maintenance Technologist Grade 1 certification.

Wastewater Facilities Instrumentation Technician II

Must obtain and maintain within 12 months of date of appointment a CWEA PM Electrical/Instrumentation Technologist Grade 2 certification.

DESIRABLE QUALIFICATIONS

- Experience in a wastewater treatment plant or water treatment plant.
- Manufacturer's training in, SCADA, PLC, and/or HMI hardware/software.

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Career Path

- Wastewater Facilities Electrical/Instrumentation Supervisor
- *Wastewater Facilities Instrumentation Technician II*
- *Wastewater Facilities Instrumentation Technician I* or Utility Maintenance Technician