

## INSTRUMENTATION TECHNICIAN I

*This class specification indicates, in general terms, the type and level of work performed as well as the responsibilities of employees in this classification. The job functions described are not to be interpreted as being all-inclusive to any specific employee.*

### **DEFINITION**

Under general supervision, maintains, calibrates, and repairs process control instrumentation and related equipment; implements additions or modifications to control systems; troubleshoots and repairs electrical, electronic, microprocessor-based, and pneumatic and mechanical process control components; and performs duties as assigned.

### **SUPERVISION RECEIVED AND EXERCISED**

Receives general supervision from assigned supervisory and/or managerial staff. Exercises no direct supervision over staff.

### **CLASS CHARACTERISTICS**

This classification is the second of five levels within the instrumentation maintenance job series. Positions at this level have prior experience but are not expected to function with the same amount of knowledge or skill level as positions allocated to the Instrumentation Technician II level. Positions at this level exercise less independent judgment in matters related to work procedures and methods. Work is usually supervised while in progress and fits an established structure or pattern. Exceptions or changes in procedures are explained in detail as they arise. This class is distinguished from the Instrumentation Technician II in that the latter is responsible for the more complex instrumentation maintenance and repair assignments.

### **EXAMPLES OF ESSENTIAL JOB FUNCTIONS** (Illustrative Only)

*The following essential job functions are typical for this classification. Incumbents may not perform all of the listed job functions and/or may be required to perform additional or different job functions from those set forth below to address business needs and changing business practices.*

- Performs or assists in non-complex installations of process control components, panels, cables, and systems; determines measurements and develops drawings for installations; installs parts, equipment, piping, and wiring per design specifications; calibrates instruments; tests systems; corrects failures; documents control cable routing.
- Maintains process control instrumentation and support systems throughout the plant and at off-plant pump stations; cleans, calibrates, and lubricates control equipment and enclosures, tools, test equipment, vehicles, and instrument shop facilities; maintains shop equipment by sending test equipment out to vendors for calibration and certification; maintains spare equipment inventory.
- Troubleshoots and assists in repairing electrical, electronic, microprocessor-based, pneumatic, and mechanical process control components; identifies, isolates, and diagnoses failures using various types of test equipment; interprets schematic and loop drawings.
- Gathers technical information to support the addition or modification of control systems needed to enhance the operation of wastewater treatment process controls by researching existing control systems; implements additions or modifications by reprogramming software such as ladder logic that interfaces

personal computers with programmable logic controllers (PLCs), customizing application programs that interface between PLCs and distributive control systems (DCSs), and reprogramming man machine interface (MMI) software.

- Assists with special projects including redesigning, retrofitting, and/or refurbishing existing plant devices such as upgrading or modifying SCADA system, cameras, and safety notification and protection systems.
- Assists in performing preventive, predictive, and corrective maintenance on electrical generation and distribution systems including generator control, breaker, and master panels.
- Reviews as-built drawings during plant construction; maintains and updates applicable documents including software and application programs, instrumentation loop drawings, piping and instrument drawings (P&ID), and electrical ladders schematics; maintains summary of daily repairs and calibration tasks; enters into computer database.
- Works with contractors to solve problems regarding installation of new equipment and control systems and repair of existing equipment and systems; performs lockout/tagout procedures to assist with repairs when necessary.
- Assists with coordinating installation, maintenance, and repair work with other departments and contractors.
- Orders equipment, parts, and materials for repairs, installations, and projects; prepares purchase requisition forms; maintains parts inventory; contacts vendors to locate parts and equipment and reviews new products or procedures.
- Ensures safety and health procedures and precautions are adhered to, corrects unsafe work conditions/practices, and/or reports unsafe work conditions/practices to assigned supervisory or managerial staff.
- Performs duties as assigned.

## **QUALIFICATIONS**

### **Knowledge of:**

- Operational characteristics of process control instrumentation systems, equipment, and components and high-power equipment such as variable frequency drives (VFDs).
- Basic electrical theory, analog and digital theory, and electronic technology principles and practices.
- Basic principles, techniques, methods, materials, and tools used in process control instrumentation installation, troubleshooting, preventative and corrective maintenance, and repair.
- Principles of hydraulic and pneumatic control systems.
- Characteristics of fiber optic cable.
- Operational characteristics of microprocessors and equipment and techniques used to program them.
- Operational principles of a wastewater treatment facility.
- Applicable federal, state, and local laws, codes, and ordinances relevant to area(s) of responsibility.
- Mathematical principles and calculations.
- Principles and procedures of record keeping.
- Safety principles, practices, and procedures of all facilities, equipment, and materials used in the maintenance and repair of equipment.
- The structure and content of the English language to effectively perform the work.
- Current equipment and communication tools used for business functions and program, project, and task coordination, including computers and software programs relevant to work performed.

### **Ability to:**

- Perform a variety of non-complex installation, inspection, troubleshooting, repair, calibration, and maintenance on process control instrumentation, fiber optic equipment, high-power equipment, and support systems.

- Safety and effectively operate a variety of instrumentation repair, maintenance, installation, and testing equipment.
- Read, interpret, understand, and maintain plans, schematics, technical manuals, ladder logic, diagrams, blueprints, and drawings.
- Perform necessary mathematical calculations.
- Interpret critical data to solve complex problems.
- Prepare clear and concise technical reports and forms.
- Organize work, set priorities, meet critical deadlines, and follow-up on assignments.
- Understand, interpret, and apply all pertinent laws, codes, regulations, policies and procedures, and standards relevant to work performed.
- Operate a motor vehicle and travel to various OC San sites, projects, and/or meetings.
- Use tact, initiative, and prudence within general policy and legal guidelines.
- Comply with safe work practices and procedures in the workplace.
- Provide a high level of customer service by effectively dealing with the public, vendors, contractors, and OC San staff.
- Effectively use computer systems, software applications relevant to work performed and modern business equipment to perform a variety of work tasks.
- Communicate clearly and concisely, both orally and in writing, using appropriate English.
- Establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.

**Employment Standards:**

Any combination of education and experience that provides the required knowledge, skills, and abilities may be qualifying as determined by OC San.

1. High school diploma or G.E.D. supplemented by specialized training such as relevant trade school in instrumentation technology or a related field.
2. Two (2) years of experience maintaining, calibrating, installing, troubleshooting, and repairing electrical, pneumatic, and mechanical process control instruments.

**Licenses and/or Certifications:**

- Must possess a valid California Class C Driver's License.

**Disaster Service Workers:**

All Orange County Sanitation District employees are designated Disaster Service Workers through state law (California Government Code Section 3100-3109). Employment with the Orange County Sanitation District requires the affirmation of a loyalty oath to this effect. Employees are required to complete all related training as assigned, and to return to work as ordered in the event of an emergency.

**PHYSICAL DEMANDS**

- Mobility to work in and around wastewater treatment plants, pump/lift stations, and related utility systems and facilities; to sit, stand, and walk on level, uneven, or slippery surfaces; frequently reach, twist, turn, kneel, bend, stoop, squat, crouch, grasp, and make repetitive hand movement in the performance of daily duties; to climb and descend ladders, to operate varied hand and power tools and equipment, and to operate a motor vehicle and visit various OC San sites, projects, and/or meetings.
- Perform moderate to heavy physical work; to lift, carry, push, and pull materials and objects averaging a weight of 51 pounds or heavier weights, in all cases with the use of proper equipment and/or assistance from other staff.
- Possible entry into confined spaces and the use of confined entry equipment and protective safety equipment.
- Vision to inspect and operate equipment.

- Field work requiring frequent walking in operational areas to identify problems or hazards.
- Finger dexterity to operate and repair tools and equipment.

### **ENVIRONMENTAL ELEMENTS**

- Field work in and around facilities with exposure to loud noise levels, cold and hot temperatures, inclement weather conditions, road hazards, vibration, confining workspace, heights, chemicals, mechanical and/or electrical hazards, hazardous physical substances and fumes, dust, and air contaminants.
- Employees may interact with upset staff and/or public and private representatives in interpreting and enforcing departmental policies and procedures.

### **OTHER REQUIREMENTS**

- May be required to work extended hours, including nights, weekends, and holidays when necessary.
- Standby and Call Back: Employees in this classification may be required to participate in standby duty and are subject to call back, which may include nights, weekends and 24-hour emergency call out with little or no notice. Any employee designated to serve on standby, or report to an emergency, and refuses to do such, shall be subject to disciplinary action up to and including termination.
- Probationary Period: All OC San employees, except classifications considered “at-will”, are subject to the probationary period provisions as specified in the applicable Memorandum of Understanding, policies, and/or resolutions. Employees who have not yet successfully completed their initial probationary period serve “at-will” and may be released from employment without cause or recourse to any appeal or grievance procedures.
- Pre-Employment: All employment offers are contingent upon successful completion of OC San’s pre-employment process, which includes a background investigation, a physical examination, and a drug screen.
- Work Location Assignment: Employees will be assigned to a work location based on business needs which may be located at any/all of OC San locations; this work location may be changed at any time.