

LEAD INSTRUMENTATION TECHNICIAN

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 direction, leads, oversees, and participates in the work of staff responsible for the maintenance, calibration, and repair of process control instrumentation and related equipment; oversees and implements additions or modifications of control systems; troubleshoots and repairs the most complex electrical, electronic, microprocessor-based, and pneumatic and mechanical process control components; and performs duties as assigned.

SUPERVISION RECEIVED AND EXERCISED

Receives direction from assigned supervisory and/or managerial staff. Exercises no direct supervision of staff. Exercises technical and functional direction and provides training to lower-level staff.

CLASS CHARACTERISTICS

This classification is the fourth of five levels within the instrumentation maintenance job series. Positions oversee the day-to-day work of staff in assigned areas of responsibility and perform the most complex duties required to ensure that OC San process control instrumentation and related equipment to which assigned are maintained in a safe and effective working condition and provide the highest level of safety for OC San and public use. Responsibilities include inspecting and attending to assigned areas in a timely manner and performing a wide variety of tasks in the maintenance and repair of assigned systems. Performance of the work requires the use of considerable independence and initiative within established guidelines. This class is distinguished from Maintenance Specialist in that the latter plans corrective, preventative, and predictive maintenance work orders using the Computerized Maintenance Management System (CMMS) and assists in developing maintenance strategies based on preventative and predictive maintenance best practices.

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.

- Leads, plans, trains, and reviews the work of staff responsible for the maintenance, calibration, and repair of process control instrumentation and related equipment; provides technical direction including assessment of performance for assigned staff; assigns and coordinates work assignments.
- Verifies the work of assigned employees for accuracy, proper work methods, techniques, and compliance with applicable standards and specifications; participates in the development of standard operating procedures.
- Oversees and demonstrates the safe and proper use, care, and operation of process control instrumentation and related equipment.
- Performs the most complex work of the unit including troubleshooting and repairing the programmable logic controller (PLC) based system and a wide variety of complex control instruments relating directly

- and indirectly to the control of the plant processes and related support systems.
- Prepares complex job plans 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 PLCs; customizes application programs that interface between PLCs and distributive control systems (DCSs); and reprograms man-machine interface (MMI) software.
 - Performs the most 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.
 - Troubleshoots and repairs the most complex 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.
 - Maintains the most complex 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.
 - Reviews as-built drawings during plant construction to verify accuracy and correct mistakes related to field wiring and loop control functions.
 - Oversees and participates in maintaining and updating all applicable documents including software and application programs, instrumentation loop drawings, piping and instrument drawings (P&ID), and electrical ladder schematics; maintains summary of daily repairs and calibration tasks.
 - Coordinates installation, maintenance, and repair work with other departments and contractors; works with contractors to solve problems regarding new installation of equipment and control systems and to maintain proper adherence to all safety procedures.
 - Leads 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.
 - Orders parts and materials for repairs and projects using the computer-based warehouse purchasing program; contacts outside vendors pertaining to new products and procedures that may enhance present business practices; contacts outside vendors and manufacturers to locate appropriate parts and equipment necessary to maintain plant operation at peak performance.
 - Confers with field staff to determine the extent of repairs needed and apply correct repair procedures to complete the task in a timely, safe, and professional manner; checks all repair work orders to ensure correct asset assignment necessary to maintain accurate database; prepares technical reports of work performed and equipment and materials used.
 - Responds to inquiries in a courteous manner; provides information within the area of assignment; resolves complaints in an efficient and timely manner.
 - 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:

- Principles of providing functional direction and training.
- Operations, services, and activities of an instrumentation maintenance program including process control instrumentation systems, equipment, and components and high-power equipment such as variable frequency drives (VFDs).
- Advanced electrical theory, analog and digital theory, and electronic technology principles and practices.

- Advanced principles, techniques, and methods and modern materials and tools used in process control instrumentation installation, troubleshooting, preventative and corrective maintenance, and repair work.
- Principles of hydraulic and pneumatic control systems.
- Characteristics of fiber optic cable.
- Operational characteristics and application 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.
- Procurement practices sufficient to order parts, maintain inventories, and consult with vendors.
- 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, including the meaning and spelling of words, rules of composition, and grammar.
- 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:

- Plan, organize, and coordinate the work of assigned staff.
- Effectively provide staff leadership and work direction.
- Inspect the work of assigned staff and maintain established quality control standards.
- Train assigned staff in proper and safe work procedures.
- Independently perform the most complex installation, inspection, troubleshooting, repair, calibration, and maintenance on process control instrumentation, fiber optic equipment, high-power equipment, and support systems.
- Understand, interpret, apply, and ensure compliance with all pertinent laws, codes, regulations, policies and procedures, and standards relevant to work performed.
- 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 complex logic programming and interpret data derived from testing equipment.
- Interpret critical data to solve complex problems.
- Perform necessary mathematical calculations.
- Prepare and maintain clear and concise technical reports and forms.
- Organize and prioritize a variety of projects and multiple tasks in an effective and timely manner; organize own work, set priorities, and meet critical time deadlines.
- Operate a motor vehicle and travel to various OC San sites, projects, and/or meetings.
- Use tact, initiative, prudence, and independent judgment within general policy, procedural, 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 grammar and syntax.
- 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 or coursework such as relevant trade school in instrumentation technology or a related field.
2. Five (5) years of increasingly responsible experience installing, maintaining, calibrating, troubleshooting, and repairing electrical, pneumatic, and mechanical process control instrumentation equipment.

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.