

EL DORADO IRRIGATION DISTRICT
Class Specification

CLASS TITLE: Electrical and Instrumentation Technician I/II

DEFINITION

Under supervision performs skilled duties related to the maintenance, design, installation, calibration, troubleshooting, and repair of supervisory control and telemetry systems, instruments, programmable logic controllers (PLC's), process control systems, analyzers, electronic and electrical components associated with the District's water and wastewater treatment plants, water distribution systems, recycled water systems, solar array, and hydroelectric power plant.

DISTINGUISHING CHARACTERISTICS

Electrical and Instrumentation Technician I – This is the entry level class in the Electrical and Instrumentation series. Positions in this class typically have experience as an electrician or instrumentation technician, and may not have directly related work experience with a utility. The Electrical and Instrumentation Technician I class is distinguished from the II level by the performance of less than the full range of duties assigned to the II level. Incumbents work under immediate supervision while learning job tasks, progressing to general supervision as procedures and processes of assigned area of responsibility are learned.

Electrical and Instrumentation Technician II – This is the journey level class in the Electrical and Instrumentation series and is distinguished from the I level by the assignment of the full range of duties. Incumbents at this level receive only occasional instruction or assistance as new, unusual or unique situations arise and are fully aware of the operating procedures and policies within the work unit. Positions in this class are flexibly staffed and are normally filled by advancement from the I level.

This class is distinguished from the Senior Electrical and Instrumentation Technician in that the latter performs the most difficult and responsible types of duties assigned to classes within this series and may provide technical and functional supervision of assigned personnel.

SUPERVISION RECEIVED AND EXERCISED

Electrical and Instrumentation Technician I

Receives immediate supervision from an assigned supervisor or manager; may receive technical and functional supervision from a Senior level class.

Electrical and Instrumentation Technician II

Receives general supervision from an assigned supervisor or manager; may receive technical and functional supervision from a Senior level class.

EXAMPLES OF ESSENTIAL DUTIES: *the duties specified below are representative of the range of duties assigned to this class and are not intended to be an inclusive list.*

CLASS TITLE: Electrical and Instrumentation Technician I/II

Performs skilled duties related to the troubleshooting, maintenance, repair, and testing of instrumentation, PLC's, electrical and electronic, mechanical, and electro-mechanical components associated with the District's water, wastewater, recycled water and hydroelectric systems of up to 600 volts.

Performs design work that includes the research and determination of design criteria in accordance with standards and codes; prepares calculations, sketches, plans, specifications, and cost estimates; builds and installs control panels.

Inspects, maintains, repairs, installs and/or tests electrical circuits, transformers, switches, lighting fixtures, motors, generators, outlets, control panels, electrical components of process control and telemetry systems, cathodic protection systems and any other related electrical systems utilized by District operations.

Performs highly skilled testing, maintenance, and repair on controller, power switching gears, and distribution systems, lighting circuits, single and multi-phase power and control circuits, plan condition status and alarm circuits, and laboratory equipment.

Installs and mounts systems related to electrical and electronic components, instrumentation control, telemetry, telecommunications, hydraulics, pneumatics, and a variety of other systems; inspects installed systems to assure proper operation.

Maintains calibration, configuration control, preventive maintenance, and system integrity records required by internal and external directives; recommends calibration intervals; performs routine alignment and calibration on electronic and electrical equipment.

Ensures the effective and efficient operation of electrical, electronic, , and related instrumentation associated with the District's water and wastewater treatment, distribution facilities, solar voltaic, other renewable energy systems, and hydroelectric operations.

Monitors the District's Supervisory Control and Data Acquisition system (SCADA); supports authorized personnel responsible for the programming of the District's SCADA and telemetry systems.

Utilizes a variety of modern testing equipment to troubleshoot and isolate issues with instrumentation, electrical and electronic components and equipment.

Inspects new construction for compliance with District standards and specifications; reports issues or concerns to engineering and inspection as required.

Interfaces with vendors, District and other utility personnel on the operation and repair of District equipment and facilities; plans, coordinates, inspects and participates with District staff and contractors in the development of systems and equipment used in the operation and automation of District facilities.

Plans, monitors, and conducts electrical preventive maintenance program; provides training and technical advice to operational staff as required.

CLASS TITLE: Electrical and Instrumentation Technician I/II

Coordinates with vendors to resolve issues with instrumentation, electrical and electronic components; plans, coordinates and monitors special projects with outside contractors; orders materials and components for repairs and/or modifications at facilities.

Follows all safety regulations, policies and procedures; operates equipment in a safe and efficient manner in a variety of hazardous environments.

Maintains accurate historical records, files, and data; assists in the generation of monthly compliance and special project reports; maintains records.

Maintains computerized maintenance management system for components serviced and helps optimize predictive, preventative and corrective maintenance schedules.

Monitors SCADA personal computers for database integrity and system performance.

Builds and maintains positive working relationships with co-workers, other District employees and the public using principles of good customer service.

Performs related duties as assigned.

QUALIFICATIONS

Electrical and Instrumentation Technician I

Knowledge of:

Basic electrical theory and principles. Basic principles and practices of inspecting, troubleshooting, calibrating and repairing of electrical, electronic, mechanical and electro-mechanical components and instrumentation. Materials, tools, and equipment used in the installation, maintenance, and repair of electrical, electronic, mechanical, and electro-mechanical components and instrumentation. Applicable codes, regulations, standards, and procedures governing electrical and electronic industry. Safe work methods and safety regulations pertaining to the work. Basic control systems theory and its practical application to process control and field instrumentation.

Skill/Ability to:

Learn principles and practices of installing, troubleshooting and repairing of electrical, electronic and electro-mechanical components instrumentation. Ability to work safely on District equipment of up to 600 volts. Learn to read blueprints, parts lists, schematics and diagrams to determine appropriate action. Learn to plan and execute repair, maintenance, calibration, and installation of controls, electronic equipment, and electrical components. Establish and maintain effective working relationships with those contacted in the course of work. Ability to maintain reliable attendance is a condition of employment, subject to applicable medical and disability leave laws. Communicate clearly and concisely, both orally and in writing. On a continuous basis, know, understand and observe safety rules; learn to intermittently analyze problem equipment; identify and locate equipment; interpret work orders; remember equipment location; and explain jobs to others. Intermittently, sit while studying or preparing reports; bend, squat, climb, kneel and twist when performing installation/repair of equipment; perform simple and power grasping, pushing, pulling, and fine manipulation; and lift or carry weight of 40 pounds or less.

CLASS TITLE: Electrical and Instrumentation Technician I/II

Experience and/or Education:

Any combination of experience and training that would provide the required knowledge and abilities is qualifying. A typical way to obtain the required knowledge and abilities would be:

Experience:

One (1) year of electrical or electronic experience.

Education:

Equivalent to completion of the twelfth grade, supplemented by course work in electrical theory, electronics, or related field.

SPECIAL QUALIFICATIONS

License and Certificate:

Possession of, or ability to obtain, a valid California driver's license at the time of appointment. Individuals who do not meet this requirement due to physical disability will be reviewed on a case-by-case basis.

California Water Environment Association (CWEA) Grade I Plant Maintenance Technologist certification within 18 months from appointment as a condition of continued employment.

State of California Certification as a General Electrician or completion of a recognized apprenticeship in the electrical trade.

Employees in this classification whose job duties require internet connectivity or the use of a District laptop and air card while on standby must provide and utilize, at their sole expense, a functionally reliable personal internet connection or District provided reliable air card with a District-provided laptop to facilitate District stand-by business.

Electrical and Instrumentation Technician II

In addition to the qualifications for the Electrical and Instrumentation Technician I:

Knowledge of:

Principles, methods, materials, tools, and equipment used in the design, installation, testing, operation, maintenance, repair, calibration, and optimization of instrumentation, electrical, electronic, mechanical and electro-mechanical systems including radio telemetry and solar field. Arc Flash Safety gear and the use of equipment as required by NFPA 70E and CalOSHA. Electrical and electronic theory and practice as applied to process instrumentation and control equipment. Technical operation and maintenance of modern electronic devices. Instrumentation, electronic and electrical components associated with water reclamation, water treatment plants, water distribution systems, and hydroelectric power plants. Principles and practices of instrumentation calibration and alignment procedures. PLC based controls, radio, and telemetry methodology. Control system architecture. Control systems theory and its practical application to process control and field instrumentation. Plant processes. Safe work methods and safety regulations pertaining to the work. National Electric Code and other pertinent local, State and Federal laws, rules and regulations.

CLASS TITLE: Electrical and Instrumentation Technician I/II

Skill/Ability to:

Install, modify, design, troubleshoot, maintain, and repair electrical, electronic, electro-mechanical instrumentation and equipment. Calibrate, align, and test a variety of processes. Read, interpret, and understand technical manuals, electronic schematics, blueprints, drawings, and diagrams. Design, update, and fabricate new equipment and control systems. Troubleshoot quickly to minimize downtime. Plan and execute repair, maintenance, and installation of controls, electronic equipment. Use modern precision and diagnostic tools and instruments. Keep records and prepare reports. Read, interpret, and understand technical manuals, blueprints, drawings, and diagrams.

Experience and/or Education:

Any combination of experience and training that would provide the required knowledge and abilities is qualifying. A typical way to obtain the required knowledge and abilities would be:

Experience:

Three years of responsible experience similar to Electrical and Instrumentation Technician I with the El Dorado Irrigation District. .

Education:

Equivalent to completion of the twelfth grade, supplemented by college or equivalent course work in electronics, instrumentation, control systems, or related field.

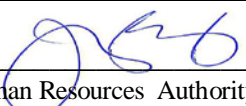
SPECIAL QUALIFICATIONS

License and Certificate:

Possession of, or ability to obtain, a valid California driver's license at the time of appointment. Individuals who do not meet this requirement due to physical disability will be reviewed on a case-by-case basis.

California Water Environment Association (CWEA) Grade II PM Electrical/Instrumentation (E/I) Technologist certification within 18 months from appointment as a condition of continued employment.

Employees in this classification whose job duties require internet connectivity or the use of a District laptop and air card while on standby must provide and utilize, at their sole expense, a functionally reliable personal internet connection or District provided reliable air card with a District-provided laptop to facilitate District stand-by business.

 _____ Human Resources Authority	<u>11/22/17</u> Date
Established: 08/18/2009 Revised: 11/22/2017 FLSA: Non-Exempt Unit: Safety	