

**CLASS STUDY****STUDY REPORT & SALARY RECOMMENDATION**

Job Classification Studied:	Electrician-Instrumentation Technician
Department/Division:	Sonoma Water
Position Reports to (Classification):	Water Agency Principal Engineer
Incumbents:	Edward Allison, Terry Conway, Craig Fildes, William Pulley, Rolando Unciano, and David Williams
Bargaining Unit:	Local-39
Study Requested by:	Sonoma Water

Recommendation:

Establish the new classifications of and salaries for Water Agency Electrician-Instrumentation Technician I and Water Agency Senior Electrician-Instrumentation Technician, and approve the specification update and re-titling of Water Agency Electrician-Instrumentation Technician II (formerly Electrician-Instrumentation Technician).

Background:

The Agency's Electrician/Instrumentation Technician (E/I Tech.) is a single-position classification with "primary responsibility for maintaining all electronic, mechanical, and related equipment and instruments used in water supply, wastewater treatment, disposal, and related facilities". However, the volume of work in this area has grown over time to the point that the Agency now has seven allocations in this class.

The Agency asked Human Resources to evaluate the merits of creating an Electrician/Instrumentation Technician series that reflects the levels required work and affords the Agency with greater recruitment flexibility coupled with the opportunity to have lead oversight and coordination.

Findings & Analysis:

Through the study process, HR determined that a three-level series comprised of an entry level, a journey level, and an advanced-journey level class would be appropriate. This will mean establishing new entry and advanced journey levels (i.e., Water Agency Electrician/Instrumentation Technician I and Water Agency Senior Electrician/Instrumentation Technician, respectively) and revising/re-titling the existing journey level class (i.e., Electrician/Instrumentation Technician to Water Agency Electrician/Instrumentation Technician II).

This structure provides employees with a clear career progression in this specialized, technical area and allows the Agency to:

- Hire candidates who have the education/training in electronic technology, but who do not have the level of experience required to independently perform the full scope of work required of journey-level staff. Once incumbents have demonstrated that they have the requisite experience, the Water Agency can promote them to the journey level.

- Assign work based on the complexity of the project.
- Have lead-level positions in each of the three functional areas to provide technical subject-matter expertise and, if needed, coordinate and review work of entry- and journey-level staff on assigned projects.

As designed, the entry and journey levels would be alternately staffed, to allow for recruitment flexibility and the straightforward progression of incumbents as they gain experience to the full working level. Since the Senior E/I Technician is not an alternate to the entry and journey levels, positions in this class will be separately allocated and filled through a competitive process. However, they do offer incumbents a promotional opportunity.

The Agency's management has indicated that three advanced journey allocations would provide the appropriate technical expertise and project coordination in the Operations Division's three functional areas; the Sonoma Valley Sanitation District, West County sanitation, and water treatment and distribution. HR supports this structure.

Community of Interest & Fair Labor Standards Determinations:

Pursuant to the County's Employee Relations Policy, HR determined that the new Water Agency E/I Tech. I, and Water Agency Senior E/I Tech. classifications should be allocated to the International Union of Operating Engineers, Stationary Engineers – Local 39 (Local 39), based on the work performed. HR further determined that the classifications are non-exempt and eligible for overtime pay, pursuant to the guidelines of the Fair Labor Standards Act.

Current Incumbents:

There has been turnover both among incumbents and at the management level since this study began. Along with these staffing shifts, changes in the structural organization for the work of the unit have been implemented.

At the outset of the study, HR met with incumbents to learn about the duties and responsibilities that comprise the Electrician/Instrumentation Technician body of work. Additionally, incumbents submitted information on duties performed. Although, changes have occurred since that time, the data supports all current positions working at the journey level.

Therefore, HR does not feel it appropriate to designate specific position(s) be reclassified to the advanced-journey Senior E/I Tech. level. Instead, the Water Agency plans implement positions with advanced journey level roles/responsibilities in each functional Operations area and request Board approval to change three of the existing journey level allocations to the new, higher level class. Then, the three Senior E/I Tech. positions will be filled through a promotional recruitment.

Classification Recommendation:

HR recommends the creation of a three-level Water Agency Electrician/Instrumentation Technician class series comprised of a new entry-level Water Agency Electrician/Instrumentation Technician I, the current journey-level Water Agency Electrician/Instrumentation Technician II (revised and re-titled), and a new advanced journey/lead Water Agency Senior Electrician/Instrumentation Technician. Additionally, the first two levels would be alternately staffed, while the highest level would be a promotional opportunity.

Salary:

When establishing the salary for a new classification, HR evaluates the class using a “360 degree” approach that includes looking at external market data, when it exists, internal equity with similar classes and/or classes within a series, and reporting relationships.

External market data is based on identifying “match classes” among comparator agencies. A match class should be one that shares a significantly similar purpose and has sufficiently similar classification factors with the new class for which salary is being established.

Internal equity reflects the new classification’s relative purpose; scope; responsibilities (and complexity thereof); required knowledge, skills, and abilities; level of supervision/autonomy; and other classification factors.

The County’s compensation structure is based on a set of benchmark job classifications. Benchmark classifications are typically those that are readily found and used in comparator agencies, and are typically a journey, or “full-working level”, class.

The salaries for all other job classifications are administered by setting appropriate internal relationships that link each class back to a benchmark. Together, these relationships establish internal equity between the new and existing classes performing similar functions on a County-wide basis as well as the other classifications within the department or functional area.

Determining the appropriate salaries for a class series typically begins with the journey-level class. Both the market survey and internal equity analysis is conducted to establish the appropriate salary for the journey-level class and then the other levels in the series are set at differentials above or below the journey-level.

In this case, the journey level Water Agency Electrician/Instrumentation Technician II has been established. It is an existing benchmark classification with a salary of \$10,215 Monthly I-Step.

With an established journey-level benchmark, HR used the principles of internal equity to evaluate the appropriate differentials between the entry and journey levels and between the journey and advanced journey levels in the series. The following is a summary of this analysis:

- There are several distinctions between the new E/I Tech. I and the E/I Tech. II. First, incumbents are not expected to have experience in both electrical and instrumentation fields. Therefore, incumbents are not expected to have the experience required to perform the full range of duties in the installation, maintenance, and repair of equipment used in the process control and monitoring of water and wastewater systems independently. In fact, immediate supervision is expected for new incumbents, with the expectation that less direct supervision is required with experience. The level of independent judgment required of entry-level incumbents is lower than their journey-level counterparts. Finally, the minimum qualifications require one year less experience.
- The distinctions between the E/I Tech. II and the new Senior E/I Tech. are similar to those between the E/I Tech. I and E/I Tech, II. Incumbents at the advanced-journey level are expected to serve as subject-matter experts for their colleagues and to take a lead role in coordinating the work for larger and more complex projects. The Senior E/I Tech. requires Water Treatment Operator T2 and the Water Distribution Operator D1 certification within two years of employment.

Salary Recommendation:

Given these differences between the levels, HR recommends setting and administering the salary for the E/I Tech. I at 10% below that of the E/I Tech. II, or \$9,286/Monthly I-Step. HR also recommends setting and administering the salary for the Senior E/I Tech. at 10% above that of the E/I Tech. II, or \$11,237/Monthly I-Step.

Report Prepared by:	Maggie Miller, Principal Classification Analyst
Report Approved by:	Spencer Keywood, Recruitment & Classification Manager
Date:	September 6, 2019, Updated August 6, 2021

WATER AGENCY ELECTRICIAN/INSTRUMENTATION TECHNICIAN I**Definition**

Under immediate supervision, performs routine duties in the installation, maintenance and repair of water and wastewater systems process control and monitoring equipment; works with skilled technical staff to learn the Water Agency's operations and equipment maintenance and repair procedures.

Distinguishing Characteristics

This is the entry level within the Electrician/Instrumentation Technician classification series allocated solely to the Sonoma County Water Agency (Water Agency). Incumbents in this class are responsible for learning to perform the full ranges of diverse technical support duties in the installation, maintenance, and repair of assigned process control and systems monitoring equipment.

Incumbents in this classification may have experience in one of the functional areas of responsibility (e.g. electrical or instrumentation), but not both. As experience is gained in both areas, assignments become more varied, complex, and difficult; close supervision and frequent review of work lessen as an incumbent demonstrates skill to perform the work independently. Incumbents are not expected to function at the same skill level and usually exercise less independent discretion and judgment in matters related to work procedures and methods, particularly when tasks in a new functional area are being performed in a learning capacity. The Electrician/Instrumentation Technician I class is alternately staffed with the Electrician/Instrumentation Technician II level in the class series.

This class is exempt from the Civil Service Rules of the County of Sonoma as stated in Section 5 of Ordinance No. 305-A, as amended.

Typical Duties

Duties include, but are not limited to, the following:

Performs routine tasks, and assists skilled technician staff in the installation, maintenance, troubleshooting and repair of electrical, electronic and automated process control systems, programmable logic controllers (PLC's) and associated measurement and control devices used in water treatment and distribution, and wastewater treatment systems.

Performs preventative maintenance program tasks on electrical and electronic generation, distribution and control equipment which include, but are not limited to, cleaning, lubrication, adjustments, visual inspections, and minor repairs.

Calibrates equipment, machinery, instruments, testing equipment, wiring, and associated hardware to ensure equipment performs within required specifications and tolerances; solders and replaces components, component wiring, indicators and wiring harnesses.

Learns to conduct ongoing inspections on equipment to ensure proper operation and to note any signs of impending equipment failure; notifies supervisor of any situations which require more skilled attention.

Troubleshoots and diagnoses routine automation and process control system issues and malfunctions; confers with skilled staff in determining and obtaining proper components; repairs and tests to ensure system is functioning properly prior to returning to service.

Researches replacement parts; calculates load and environmental requirements based on physical placement of equipment and any hazards; obtains vendor quotes; with supervisory approval, orders equipment, replacement parts and services from vendors and manufacturers.

Enters maintenance and repair information into the Computerized Maintenance Management System (CMMS).

Maintains written records, logs, and other documentation required for preventative maintenance activities, and purchasing records for parts and related materials.

In conjunction with a Water Agency Electrician/Instrumentation Technician at the II or Senior level, responds to after hours and extended workday emergencies.

Ensures that duties are performed in accordance with safety procedures.

May be required to assist mechanics and operations personnel in the performance of their tasks.

Performs related duties as assigned.

Knowledge and Abilities

Working knowledge of: operations and services of a comprehensive water treatment and distribution, and wastewater treatment agency; operational characteristics of SCADA systems and devices including PLC's as they relate to work performed; the principles, methods, tools and equipment used in installing, troubleshooting, maintaining, calibrating, programming, repairing and replacing electrical equipment, machinery and related equipment; electrical principles of medium voltage, and AC/DC circuits; principles and practices of lockout-tagout and energy isolation; basic electronic and electric theory; operational characteristics of pump and motor control systems; methods and techniques used in the installation and mounting of industrial equipment; methods and techniques of performing electrical load and wire calculations; safety and preventative maintenance requirements for electronic and electrical equipment; the use of electric and electronic testing equipment; occupational safety standards, practices and procedures required by federal, state and related laws related to electronic equipment maintenance; techniques for providing a high level of customer service by effectively dealing with the public, vendors, contractors, and Water Agency staff modern 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: learn to install, troubleshoot maintain, calibrate, repair and replace electronic and electrical equipment in all functional areas; interpret and work from technical sketches, drawings and diagrams for electrical, and electronic equipment and machinery; navigate control and logic diagrams; learn to troubleshoot a diverse range of equipment and devices through the use of diagnostic tools; read and interpret construction drawings and related equipment specifications; perform mathematic calculations as required by the job; effectively use computer systems, software applications relevant to work performed, and modern business equipment to perform a variety of work tasks; establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.

Minimum Qualifications

Education and Experience: Any combination of education and work experience that would provide an opportunity to acquire the knowledge and abilities listed herein. Normally, this would include completion of an academic or vocational program leading to an Associate's degree, or equivalent, in electronic technology or electrical industry, and two years of experience installing, maintaining, repairing, calibrating, and replacing electrical equipment and machinery. Related experience with electrical equipment and machinery similar to that used in water distribution and/or wastewater treatment systems is highly desirable.

License: Possession of a valid driver's license at the appropriate level including special endorsements, as required by the State of California, may be required depending upon assignment to perform the essential job functions of the position.

Certificates: California Water Treatment Plant Operator T1, California Water Distribution Operator Grade D1, and California Water Environmental Association Electrical Instrumentation Grade 1 certifications are highly desired.

WATER AGENCY ELECTRICIAN/INSTRUMENTATION TECHNICIAN II

Definition

Under general supervision, performs the full range of duties in the installation, maintenance, and repair of water and wastewater systems process control and monitoring equipment; troubleshoots and resolves routine and complicated automated control system operating issues; calibrates a diverse range of instruments, sensors and related measurement devices of the Sonoma County Water Agency (Water Agency); and performs related duties assigned.

~~Under general supervision, installs, maintains, calibrates, repairs and replaces digital and analog electrical equipment, machinery, switchgear, controllers and associated equipment and instrumentation used in water supply and wastewater treatment facilities; and performs related duties as required.~~

Distinguishing Characteristics

The Water Agency Electrician/Instrumentation Technician is the journey level class in the Electrician/Instrumentation Technician series allocated solely to the Water Agency. Incumbents in this class are responsible for performing the full ranges of diverse technical support duties in the installation, maintenance, and repair of assigned process control and systems monitoring equipment. Incumbents work without immediate technical supervision, use considerable independent judgment, and are fully aware of the operating procedures and policies of the work unit.

The Electrician/Instrumentation Technician II is distinguished from the Electrician/Instrumentation Technician I by the performance of the full range of duties in both electrical and instrumentation functional areas, working independently, and exercising judgment and initiative. This class is distinguished from the Senior Electrician/Instrumentation Technician in that the latter provides technical and functional direction over lower level staff on an ongoing basis.

~~The Electrician/Instrumentation Technician is a single position class. The incumbent has primary responsibility for maintaining all electronic, mechanical and related equipment and instruments used in water supply, wastewater treatment, disposal and related facilities. The incumbent works without immediate technical supervision using considerable independent judgment.~~

The Electrician/Instrumentation Technician II class is alternately staffed with the Electrician/Instrumentation Technician I level in the class series.

This class is exempt from the Civil Service Rules of the County of Sonoma as stated in Section 5 of Ordinance No. 305-A, as amended.

Typical Duties

Duties include, but are not limited to, the following:

Provides technical support in the installation, maintenance, troubleshooting and repair of electrical, electronic and automated process control systems, programmable logic controllers (PLC's) and associated measurement and control devices used in water treatment and distribution, and wastewater treatment systems; integrates equipment with Supervisory Control and Data Acquisition (SCADA) systems; ensures all work performed conforms to drawings and specifications.

Conducts ongoing inspections on equipment to ensure proper operation and to note any signs of impending equipment failure; works with supervisor to determine actions needed.

Performs preventative maintenance program tasks on electrical and electronic generation, distribution and control equipment which include, but are not limited to, cleaning, lubrication, adjustments, visual inspections, and minor repairs; performs proper lock-out of retired equipment.

Calibrates equipment, machinery, instruments, testing equipment, wiring, and associated hardware to ensure equipment performs within required specifications and tolerances; solders and replaces components, component wiring, indicators and wiring harnesses.

Troubleshoots and diagnoses automation and process control system issues and malfunctions; works with vendors to obtain proper components; modifies equipment per engineering or manufacturer drawings and specifications; repairs and tests to ensure system is functioning properly prior to returning to service; coordinates system repairs with operations staff and Agency departments.

Researches replacement parts; calculates load and environmental requirements based on physical placement of equipment and any hazards; obtains vendor quotes; orders equipment, replacement parts and services from vendors and manufacturers.

Observes the work of outside contractors performing work on the Agency's specialized equipment.

As assigned, provides technical support in the planning, design, documentation and phasing of new or enhanced systems for capital projects which involve medium voltage electrical, instrumentation and process control equipment or systems; participates in the design process; reviews contractor and vendor proposals; recommends equipment procurement and vendor selection; determines new equipment's compatibility with existing systems and designs component-interfaces; conducts periodic inspections; participates in commissioning the system.

Recommends best practices in maintenance processes and procedures for equipment that ensures optimization and safety; determines proper operation and practices for new equipment; prepares written policies and procedures relating to safe and proper operations, maintenance, repair and preventative maintenance standards of electrical and electronic equipment, machinery and testing equipment; places information into the Computerized Maintenance Management System (CMMS).

Responds to after hours and extended work day emergencies.

~~Works on electrical and mechanical controls, control wiring, instruments, meters, and related~~

~~test equipment associated with water supply, wastewater treatment, disposal and related facilities.~~

~~Identifies and corrects problems associated with electrical and mechanical equipment, machinery, and instrumentation.~~

~~Maintains a preventative maintenance program which includes cleaning, lubrication, adjustments, visual inspections, minor repairs and calibrations necessary to maintain equipment, machinery, instruments, testing equipment, wiring, and associated hardware at required specifications.~~

~~Solders and replaces components, component wiring, indicators and wiring harnesses.~~

~~Maintains written records, logs, and other documentation required for preventative maintenance activities of equipment, supply parts and related material.~~

~~Prepares written policies and procedures relating to safe and proper operations, maintenance, repair and preventative maintenance standards of electrical equipment, machinery and testing equipment.~~

~~Coordinates equipment repairs and maintenance with operations staff for minimal disruptions to operations.~~

~~Orders equipment, replacement parts and services from vendors and manufacturers.~~

Maintains ~~accurate records of purchases and parts.~~ written records, logs, documentation required for preventative maintenance activities, and purchasing records for parts and related materials.

Trains and instructs employees in safety procedures related to working with electrical and mechanical devices.

~~Assures~~ Ensures that self-performed tasks and duties ~~performed~~ comply with safety procedures.

~~Works effectively and maintains harmonious relationships with a wide variety of persons.~~

May be required to assist mechanics and operations personnel in the performance of their tasks.

Performs related duties as assigned.

Knowledge and Abilities

Considerable knowledge of: operations and services of a comprehensive water treatment and distribution, and wastewater treatment agency; operational characteristics of SCADA systems and devices including PLC's as they relate to work performed; the principles, methods, tools and equipment used in installing, troubleshooting, maintaining, calibrating, programming, repairing and replacing electrical and electronic equipment, machinery and related equipment; electrical principles of medium voltage, and AC/DC circuits; principles and practices of lockout-tagout and

energy isolation; electronic and electric theory, specifically as it relates to decision making for designing, purchasing and maintaining system components; operational characteristics of pump and motor control systems; methods and techniques used in the installation and mounting of industrial equipment; methods and techniques of performing electrical load and wire calculations; ~~modern electronic equipment~~; safety and preventative maintenance requirements for electronic and electrical equipment; the use of electric and electronic testing equipment; occupational safety standards, practices and procedures required by federal, state and related laws related to electronic equipment maintenance.

Working knowledge of: the techniques for providing customer service by effectively dealing with the public, vendors, contractors, and Agency staff modern 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: install, maintain, calibrate, repair and replace electronic and electrical equipment; interpret and work from technical sketches, drawings and diagrams for electrical, and electronic equipment and machinery; navigate control and logic diagrams; troubleshoot a diverse range of equipment and devices through the use of diagnostic tools; read and interpret construction drawings and related equipment specifications; ~~establish and maintain effective working relations with County employees and the public~~; prepare written policies and procedures; train other employees; perform mathematic arithmetic calculations as required by the job; independently organize work, set priorities, meet critical deadlines, and follow-up on assignments; effectively use computer systems, software applications relevant to work performed, and modern business equipment to perform a variety of work tasks; establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.

Minimum Qualifications

Education and Experience: Any combination of education and work experience which would provide an opportunity to acquire the knowledge and abilities listed herein. Normally, this would include completion of an academic or vocational program leading to an Associate's degree, or equivalent, in electronic technology or electrical industry, and three years of experience installing, maintaining, repairing, calibrating, and replacing electrical equipment and machinery. Related experience with electrical equipment and machinery similar to that used in water distribution and/or wastewater treatment systems is highly desirable.

~~**Education:** Any combination of education and/or training which would provide an opportunity to acquire the knowledge and abilities listed. Normally, completion of an academic or vocation program leading to an associate degree in electronic technology would provide such opportunity.~~

~~**Experience:** Normally, two years of experience in installing, maintaining, repairing, calibrating, and replacing electrical equipment and machinery.~~

License: Possession of a valid driver's license at the appropriate level including special endorsements, as required by the State of California, may be required depending upon assignment

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to perform the essential job functions of the position.

Certificates: [California Water Treatment Plant Operator T1, California Water Distribution Operator Grade D1, and California Water Environmental Association Electrical Instrumentation Grade 1](#) certifications are highly desired.

WATER AGENCY SENIOR ELECTRICIAN/INSTRUMENTATION TECHNICIAN**Definition**

Under direction, performs work associated with the installation, maintenance, and repair of water and wastewater systems process control and monitoring equipment, up to and including the most complex related assignments; leads, plans, assigns, reviews, and participates in the work of Electrician/Instrumentation Technicians.

Distinguishing Characteristics

This is the advanced-journey level classification in the Electrician/Instrumentation Technician series allocate solely to the Sonoma County Water Agency (Water Agency) responsible for performing the most complex work assigned to the series. Incumbents regularly work on tasks which are varied and complex, requiring considerable discretion and independent judgment. Incumbents serve as subject matter experts for lower level staff; coordinate and review work performed on large and/or complex projects; actively participate in the planning, design, documentation and phasing of new or enhanced systems for capital projects; and troubleshoot and resolve complicated automated control system operating issues.

Positions in the classification rely on experience and judgment to perform assigned duties, and ensure the effective maintenance, repair, and reliability of equipment. Assignments are given with general guidelines and incumbents are responsible for establishing objectives, timelines, and methods to complete assignments and deliver services. Work is typically reviewed upon completion for soundness, appropriateness, and conformity to policy and requirements.

The Senior Electrician-Instrumentation Technician class is distinguished from the Electrician-Instrumentation Technician II in that the latter is the journey-level classification and does not have responsibility for providing lead direction to staff or for working with the same level of independence on more complex projects.

This class is exempt from the Civil Service Rules of the County of Sonoma as stated in Section 5 of Ordinance No. 305-A, as amended.

Typical Duties

Duties include, but are not limited to, the following:

Leads, plans, assigns, reviews, and participates in the work of staff performing technical duties in the installation, troubleshooting, maintenance, and repair of water and wastewater systems process control and monitoring equipment.

Reviews staff work for quality and timeliness; trains staff in work procedures; provides feedback to staff on work performance; assists in the evaluation of employee performance and provides input into annual performance reviews for assigned staff.

Works with supervisor to determine optimal staff schedules to ensure coverage for all service areas and emergency situations.

Provides in-service training to new staff; conducts a periodic review of training manuals or standard operating procedures and revises as needed; identifies staff skill gaps and recommends additional staff training needs.

Coordinates and conducts safety training for assigned staff; ensure that staff comply with all Water Agency and mandated safety rules, regulations, procedures, and protocols.

Conducts ongoing inspections on equipment to ensure proper operation and to note any signs of impending equipment failure; works with supervisor to determine actions needed and scheduling options.

Recommends, and upon supervisor approval implements, best practices in maintenance processes and procedures for equipment that ensures optimization and safety; determines proper operation and practices for new equipment; prepares written policies and procedures relating to safe and proper operations, maintenance, repair, and preventative maintenance standards of electrical equipment, machinery, and testing equipment; oversees the placement of information into the Computerized Maintenance Management System (CMMS).

Actively participates in the planning, design, documentation, and phasing of new or enhanced systems for capital projects which involve electrical, instrumentation, and process control equipment or systems; participates in the design process; reviews contractor and vendor proposals; recommends equipment procurement and vendor selection; determines new equipment's compatibility with existing systems and designs component interfaces; conducts periodic inspections; coordinates system commissioning within assigned areas of responsibility.

Oversees the work of outside contractors performing work on the Water Agency's specialized equipment; inspects work performed to ensure compliance with specifications and Water Agency quality standards.

Performs the more complex tasks in the installation, maintenance, troubleshooting, programming, and repair of electrical, electronic, and automated process control systems, programmable logic controllers (PLC's) and associated measurement and control devices used in water treatment and distribution, and wastewater treatment systems; integrates equipment with Supervisory Control and Data Acquisition (SCADA) systems; ensures all work performed conforms to drawings and specifications.

Troubleshoots and diagnoses automation and process control system issues and malfunctions; works with vendors to obtain proper components; modifies equipment per engineering or manufacturer drawings and specifications; repairs and tests to ensure system is functioning properly prior to returning to service; coordinates system repairs with operations staff, Water Agency departments, vendors and external agencies to minimize service disruptions.

Performs preventative maintenance program tasks on electrical and electronic generation, distribution and control equipment which include, but are not limited to, cleaning, lubrication, adjustments, visual inspections, and minor repairs; performs proper lock-out of retired equipment.

Calibrates equipment, machinery, instruments, testing equipment, wiring, and associated hardware to ensure equipment performs within required specifications and tolerances; solders and replaces components, component wiring, indicators, and wiring harnesses.

Researches replacement parts; calculates load and environmental requirements based on physical placement of equipment and any hazards; obtains vendor quotes; orders equipment, replacement parts and services from vendors and manufacturers.

Maintains written records, logs, and other documentation required for preventative maintenance activities, and purchasing records for parts and related material.

Responds to after hours and extended work day emergencies.

Performs related duties as assigned.

Knowledge and Abilities

Considerable knowledge of: methods and techniques of staff scheduling; best management principles in the operation, maintenance, and repair of process control and monitoring equipment systems; operations and services of a comprehensive water treatment and distribution, and wastewater treatment agency; operational characteristics of SCADA systems and devices including PLC's as they relate to work performed; the principles, methods, tools and equipment used in installing, troubleshooting, maintaining, calibrating, programming repairing, and replacing electrical and electronic equipment, including PLC's, machinery, and related equipment; methods and techniques of troubleshooting a diverse range of equipment; electrical principles of medium voltage, and AC/DC circuits; principles and practices of lockout-tagout and energy isolation; electronic and electric theory, specifically as it relates to decision making for designing, purchasing, and maintaining system components; operational characteristics of pump and motor control systems; methods and techniques used in the installation and mounting of industrial equipment; methods and techniques of performing electrical load and wire calculations; safety and preventative maintenance requirements for electronic and electrical equipment; the use of electric and electronic testing equipment; occupational safety standards, practices, and procedures required by federal, state, and related laws related to electronic equipment maintenance.

Working knowledge of: principles of providing functional direction and training; principles and practices of leadership; techniques for providing a high level of customer service by effectively dealing with the public, vendors, contractors, and Water Agency staff; modern 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; develop and deliver training programs on work processes and safety; install, maintain, calibrate, repair, and replace electronic and electrical equipment; interpret and work from technical sketches, drawings, and diagrams for electrical and electronic equipment and machinery; navigate control and logic diagrams; troubleshoot a diverse range of equipment and devices through the use of diagnostic tools; read and interpret construction drawings and related equipment specifications; prepare written policies and procedures; train other employees; perform mathematic calculations as required by the job; independently organize work, set priorities, meet critical deadlines, and follow-up on assignments; effectively use computer systems, software applications relevant to work performed, and modern business equipment to perform a variety of work tasks; establish, maintain, and foster effective working relationships with those contacted in the course of work.

Minimum Qualifications

Education and Experience: Any combination of education and work experience that would provide an opportunity to acquire the knowledge and abilities listed herein. Normally, this would include completion of an academic or vocational program leading to an Associate's degree, or equivalent, in electronic technology or electrical industry, and two years of journey level experience equivalent to that of a Water Agency Electrician/Instrumentation Technician II performing installation, maintenance, repair, calibration, and replacement of electrical equipment and machinery used in water distribution and/or wastewater treatment systems, with at least one year working on complex projects.

License: Possession of a valid driver's license at the appropriate level including special endorsements, as required by the State of California, may be required depending upon assignment to perform the essential job functions of the position.

Certificates: California Water Treatment Plant Operator T2 and California Water Distribution Operator Grade D1 certificates are required within two years of employment in this classification and, once obtained, must be maintained as a condition of employment in this classification. A California Water Environmental Association Electrical Instrumentation Grade 2 certification is highly desirable.