

**TAHOE-TRUCKEE SANITATION AGENCY**  
**Class Specification**

**Job Title: Electrical and Instrumentation Technician I/II/III**

**Department: Maintenance**

**FLSA Status: NON EXEMPT**

**Revised as of: 12/2020**

**DEFINITION**

Performs technical duties in the installation, operation, maintenance and repair of a wide variety of electrical and instrumentation equipment used in wastewater treatment facility operations within the Maintenance Department; and provides support to an assigned supervisor.

**DISTINGUISHING CHARACTERISTICS**

Electrical and Instrumentation Technician I - This is the entry level class in the Electrical and Instrumentation Technician series. Positions in this class typically have little directly related work experience. 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 second level class in the Electrical and Instrumentation Technician series and is distinguished from the I level by the assignment of the full range of duties, with only occasional instruction or assistance needed 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 once the incumbent meets the qualification standards of the II level, demonstrates an ability to perform the full scope of the work, and meets all other performance standards.

Electrical and Instrumentation Technician III - This is the full journey level in the Electrical and Instrumentation Technician series. It is distinguished from the Electrical and Instrumentation Technician II by the ability to perform the full range of duties assigned. Positions in this class are flexibly staffed and are normally filled by advancement from the II level once the incumbent meets the qualification standards of the III level, demonstrates an ability to perform the full scope of the work, and meets all other performance standards.

## **JOB TITLE: Electrical and Instrumentation Technician I/II/III**

### **SUPERVISION RECEIVED AND EXERCISED**

#### **Electrical and Instrumentation Technician I**

Reports directly to, and receives immediate supervision from the Electrical and Instrumentation Supervisor, or designee.

#### **Electrical and Instrumentation Technician II**

Reports directly to, and receives general supervision from the Electrical and Instrumentation Supervisor.

#### **Electrical and Instrumentation Technician III**

Reports directly to, and receives general supervision from the Electrical and Instrumentation Supervisor.

**EXAMPLES OF DUTIES (for E&I Technician I/II/III):** *the duties specified below are representative of the range of duties assigned to this class and are not intended to be an inclusive list.*

- Performs technical work on a wide variety of electrical and instrumentation equipment used in wastewater treatment facility operations.
- Operates process calibrators and controllers to configure, program, calibrate, and start-up plant instrumentation and control systems.
- Inspects electrical equipment, electronic systems and telemetry equipment for proper operation.
- Performs work at on-site areas, as well as off-site monitoring stations requiring the use of an Agency vehicle.
- Programs, troubleshoots, and repairs Variable Frequency Drives and other equipment.
- Installs new equipment and parts, including conduit and wiring.
- Performs preventative and corrective maintenance on plant instrumentation, controls, and electrical systems; disassembles and replaces worn or broken parts; realigns equipment.
- Estimates time, materials and prioritizes jobs as required for various tasks.
- Performs confined space entries to service equipment.
- Assists, communicates with, and coordinates with Information Technology for troubleshooting of process controls and with Operations to achieve proper process control efficiency.
- Recommends upgrades for instrumentation and control systems; orders replacement parts for repairs as authorized.
- Maintains accurate maintenance records; completes reports and other documentation as required; enters and retrieves information electronically.
- Utilizes Computerized Maintenance Management System (CMMS) to track work orders, preventative maintenance and asset management.
- Creates, maintains and verifies instrumentation and electrical engineering drawings.

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- Operates a forklift to transport, load and unload materials, supplies and equipment, as assigned.
- Represents the Agency with dignity, integrity, and the spirit of cooperation in all relations with staff and the public.
- Builds and maintains positive working relationships with co-workers, other Agency employees and the public using principles of good customer service.
- Performs related duties as assigned.

### **QUALIFICATIONS**

#### **Electrical and Instrumentation Technician I**

##### **Knowledge of:**

- Basic principles and practices of industrial electrical systems, electronic equipment and instrument operation.
- Basic principles and practices of the design, preparation and review of plans and specifications.
- Basic methods and procedures for instrumentation communications systems including signaling, analog, digital and fieldbus and related technologies used in a wastewater treatment facility.
- Basic use of equipment, tools and materials common in the installation, operation, maintenance and repair of a wide variety of recording and metering devices, control apparatus, radio and cellular telemetering equipment, recording and data logging devices, communication systems, variable frequency drives and other electrical and instrumentation equipment used in the wastewater treatment facility operations.
- Basic methods and procedures for diagnosing electrical systems, electronic, electromechanical, and instrumentation malfunctions and the processes and equipment.
- Modern office practices, methods, and computer equipment including relevant software programs and including fax machines, copiers, printers, telephones, voicemail and e-mail systems, etc.
- Oral and written communication skills; business English including vocabulary, spelling, and correct grammatical usage and punctuation.
- Safe work practices.
- Principles and practices of customer service.

##### **Ability to:**

- Learn to perform the installation, operation, maintenance and repair of a wide variety of electrical and instrumentation equipment used in wastewater treatment facility operations.
- Learn to know and understand all requirements and essential aspects of the job including laws, regulations, rules and codes related to area of assignment; learn to know and observe safety rules and identify hazards; learn to intermittently locate, analyze, detect and diagnose problem equipment and determine solutions; train and explain processes to others; learn to problem solve issues related to area of assignment; remember various processes and requirements and how to operate equipment; learn to intermittently access, review, and interpret and adjust or

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enter data on work orders, reports and other documents; identify, interpret and communicate technical and numerical information.

- Learn to diagnose electrical, electronic, electromechanical and instrumentation malfunctions.
- Learn to interpret, understand and explain electrical and instrumentation submittals, drawings, sketches, plans and specifications.
- Understand and carry out oral and written instructions, and prioritize workload to meet deadlines.
- Read, write and comprehend the English language at a level necessary for effective job performance exercising correct English usage, vocabulary, spelling, grammar and punctuation.
- Communicate effectively, tactfully and positively in both oral and written form.
- Operate and use modern office equipment and technology, including computers and applicable software.
- Maintain regular attendance and adhere to prescribed work schedule to conduct job responsibilities.
- Function in confined spaces and/or hazardous environment.
- Use safety precautions related to all work performed including that which occurs in hazardous environments such as confined space.
- Adhere to and utilize appropriate Agency safety policies, procedures and practices and utilize appropriate Personal Protection Equipment.
- Establish and maintain effective working relationships with those contacted in the course of work.
- Contribute effectively to the accomplishment of Agency goals, objectives and activities.

### **Experience and 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:**

Two years of experience in the installation, maintenance and repair of industrial electrical, instrumentation and control systems.

### **Education:**

Equivalent to the completion of the twelfth grade supplemented by college or trade school course work in engineering, electrical, instrumentation and/or control systems or a related field.

## **SPECIAL QUALIFICATIONS**

### **License and Certificate:**

Possession of a valid California or Nevada Class C Driver License is required at time of appointment.

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Possession of a CWEA Electrical Instrumentation Technician I certificate is required for this position within three qualifying test cycles of appointment (approximately 18 months).

Possession of, or ability to obtain a forklift certification within six months of appointment.

Possession of, or ability to obtain a confined space certification within six months of appointment.

Persons employed in this classification are required to participate in Agency provided training to acquire basic First Aid and Cardiopulmonary Resuscitation (CPR) certificates during the initial 12 months of employment and continued maintenance of a valid certificate as a condition of employment for this position.

Possession of, or ability to obtain a 40-hour Hazwoper Hazardous Materials Technician Level III certification within six months of appointment.

### Electrical and Instrumentation Technician II

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

#### **Knowledge of:**

- General principles and practices of industrial electrical systems, electronic equipment and instrument operation.
- Specific principles and practices of the design, preparation and review of plans and specifications for installation, maintenance, operation, testing and repair of electrical and instrumentation equipment and processes used for a wastewater treatment facility.
- Methods and procedures for instrumentation communications systems including signaling, analog, digital and fieldbus and related technologies used for a wastewater treatment facility.
- Equipment, tools and materials used in the installation, operation, maintenance and repair of a wide variety of recording and metering devices, control apparatus, radio and cellular telemetering equipment, recording and data logging devices, communication systems, variable frequency drives and other electrical and instrumentation equipment used in the wastewater treatment facility operations.
- Methods and procedures for diagnosing electrical, electronic, electromechanical, and instrumentation malfunctions and the processes and equipment needed to perform repairs or replacements for a wastewater treatment facility.
- Methods and procedures of competitive bidding processes including how to review and prepare accurate equipment plans and specifications.

#### **Ability to:**

- Independently perform technical duties in the installation, operation, maintenance and repair of a wide variety of electrical and instrumentation equipment used in wastewater treatment facility operations.

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- On an ongoing basis, know and understand all requirements and essential aspects of the job including laws, regulations, rules and codes related to area of assignment; know and observe safety rules and identify hazards; intermittently locate, analyze, detect and diagnose problem equipment and determine solutions; train and explain processes to others; when so assigned, observe performance and input into review and evaluation of the work of others; problem solve issues related to area of assignment; remember various processes and requirements and how to operate equipment; intermittently access, review, and interpret and adjust or enter data on work orders, reports and other documents; identify, interpret and communicate technical and numerical information.
- Diagnose electrical systems, electronic, electromechanical and instrumentation malfunctions.
- Interpret, understand and explain electrical and instrumentation submittals, drawings, sketches, plans and specifications.

### **Experience and 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:**

Two years of responsible work experience similar to Electrical and Instrumentation Technician I with T-TSA.

#### **Education:**

Equivalent to the completion of the twelfth grade supplemented by college or trade school course work in engineering, electrical, instrumentation and/or control systems or a related field.

### **SPECIAL QUALIFICATIONS**

#### **License and Certificate:**

Possession of a valid California or Nevada Class C Driver License is required at time of appointment.

Possession of a CWEA Electrical Instrumentation Technician II certificate is required at time of appointment.

Possession of, or ability to obtain a forklift certification within six months of appointment.

Possession of, or ability to obtain a confined space certificate within six months of appointment.

Persons employed in this classification are required to participate in Agency provided training to acquire basic First Aid and Cardiopulmonary Resuscitation (CPR) certificates during the initial

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12 months of employment and continued maintenance of a valid certificate as a condition of employment for this position.

Possession of, or ability to obtain a 40-hour Hazwoper Hazardous Materials Technician Level III certification within six months of appointment.

### Electrical and Instrumentation Technician III

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

#### **Knowledge of:**

- Advanced principles and practices of industrial electrical systems, electronic equipment and instrument operation including specific principles and practices of the design, preparation and review of plans and specifications for installation, maintenance, operation, testing and repair of electrical and instrumentation equipment and processes used for a wastewater treatment facility.
- Advanced methods and procedures for instrumentation communications systems including signaling, analog, digital and fieldbus and related technologies used for a wastewater treatment facility.
- Methods and procedures for diagnosing the more complex electrical, electronic, electromechanical, and instrumentation malfunctions and the processes and equipment needed to perform repairs or replacements for a wastewater treatment facility.

#### **Ability to:**

- Perform the most complex and difficult duties related to the installation, operation, maintenance and repair of a wide variety of electrical and instrumentation equipment used in wastewater treatment facility operations.
- Diagnose complex electrical, electronic, electromechanical and instrumentation malfunctions.
- Assist with the training of new staff.

#### **Experience and 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:**

Two years of responsible work experience similar to Electrical and Instrumentation Technician II with the T-TSA.

#### **Education:**

Equivalent to the completion of the twelfth grade supplemented by college or trade school course work in engineering, electrical, instrumentation and/or control systems or a related field.

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### **SPECIAL QUALIFICATIONS**

#### **License and Certificate:**

Possession of a valid California or Nevada Class C Driver License is required at time of appointment.

Possession of a CWEA Electrical Instrumentation Technician III certificate is required at time of appointment.

Possession of, or ability to obtain a forklift certification within six months of appointment.

Possession of, or ability to obtain a confined space certificate within six months of appointment.

Persons employed in this classification are required to participate in Agency provided training to acquire basic First Aid and Cardiopulmonary Resuscitation (CPR) certificates during the initial 12 months of employment and continued maintenance of a valid certificate as a condition of employment for this position.

Possession of, or ability to obtain a 40-hour Hazwoper Hazardous Materials Technician Level III certification within six months of appointment.

#### **PHYSICAL REQUIREMENTS (for E&I Technician I/II/III)**

Position self and intermittently move so as to access, maintain, clean, repair and/or install equipment; intermittently move, traverse and position self around the office, shop or job site while performing work activities and to reach needed items; work effectively for long periods of time at a desk, table, counter, in a shop, confined space, or while driving vehicle or operating equipment; position self to adjust equipment, use tools to review work of others or to access low or high items; ascend and descend stairs, ladders or step stools to reach equipment or other items and to access areas out of reach; manipulate, operate, activate and adjust equipment and tools; and move or transport weight of 50 pounds or less.

Ability to wear a self-contained breathing apparatus (SCBA) and Full-Face Air Purifying Respirator (APR).

#### **WORKING/ENVIRONMENTAL CONDITIONS (for E&I Technician I/II/III)**

Work is performed in a plant environment subject to typical plant noise and environment conditions. Many duties expose the incumbent to outdoor conditions, along with exposure to all weather conditions and possible exposure to chemicals (dust, gases, liquids, solids, fumes), odors and noise.