



CITY OF PETALUMA  
CLASS SPECIFICATION

Date: 12/07/2020  
Job Class: 03EITE  
(former: WRTE)

## Electrical/Instrumentation Technician

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### Summary

Maintain, calibrate, test, and troubleshoot instrumentation, process controls, programmable logic controllers, data acquisition systems, variable frequency drives, and electrical systems at the City's Water Recycling Facility.

### Class Characteristics

General supervision is provided by a higher-level supervisor or manager; responsibilities may include the indirect supervision of support staff.

The Electrical/Instrumentation Technician is a single class advanced-journey level position. The incumbent applies considerable expertise, technical knowledge, and skill to ensure that the instrumentation and electrical systems at the water recycling facility and related facilities are operational and meet regulatory requirements.

### Essential Duties, Skills, and Demands of the Position

*The duties, skills, and demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with a disability to perform the essential duties, skills, and demands.*

#### Duties:

Maintain, calibrate, monitor, test, troubleshoot, install, and repair instrumentation, process controls, data acquisition systems, and electrical systems.

Monitor and maintain the Supervisory Control and Data Acquisition (SCADA) system and other facility operation software systems.

Maintain, test, and repair metering and recording instruments, control apparatus, data logging and display equipment, communications and telemetry systems, programmable logic controllers (PLCs), heating ventilation and air conditioning units (HVAC).

Inspect, install, repair, maintain, and troubleshoot electrical, electronic and associated control systems and power circuits, switchgear, emergency systems, cathodic protection, corrosion control, electric motors, and associated equipment; perform special pump maintenance and repairs on valve actuators, submersible pumps, diesel engine control circuits, and variable speed and level control devices, high-strength waste receiving stations, and compressed natural gas processing and fueling facilities.

Install, test, troubleshoot, and repair automated telemetry equipment, including calibration of input sensors such as flow meters, level transducers, pressure transducers, analyzers, meters, probes, and other monitoring equipment.

Design and/or redesign electronic, hydraulic, and pneumatic control systems, power circuits and control circuits, lighting systems and associated control systems; wire or rewire new or existing

Electrical/Instrumentation Technician  
facilities, structures, and equipment.

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Modify and add additional functionality to existing applications, programs, control, and instrumentation, as necessary.

Collaborate with other staff to improve SCADA displays and processes.

Plan for technology upgrades and system expansion and make recommendations for capital investments.

Plan or assist in the planning of complex maintenance programs.

Configure and troubleshoot PC desktops, server hardware, and operating systems.

Maintain and develop files and records for electrical and instrumentation systems and equipment in a computerized maintenance management system (CMMS); create and maintain drawings; review SCADA system alarms for equipment failures, prepare special and daily reports utilizing SCADA, CMMS, Microsoft products, or similar products; order equipment repair parts and/or new upgraded equipment.

Troubleshoot and repair Fire Alarm Protection Systems, including the control panels and ancillary sensors.

Prepare equipment specifications and service agreements and oversee outside contractor activities.

Train, instruct, and assist facility staff.

Perform related duties as assigned.

Skills/Abilities:

Maintain, calibrate, monitor, test, troubleshoot, install, and repair instruments and electrical, electronic, computer, telemetry, metering, and recording equipment.

Analyze, diagnose, and develop solutions to system and equipment problems.

Read and interpret maps, sketches, drawings, PLC ladder logic, specifications, blueprints, schematic diagrams, and equipment manuals.

Operate a variety of tools and equipment used in instruction, electrical, and facility control systems.

Use software to troubleshoot and analyze plant processes and events.

Follow City protocols for contract work of high voltage equipment, generator maintenance, certified flow meter calibrations, and other equipment as required.

Operate office equipment including computers and supporting word processing, SCADA systems, spreadsheet, and database applications.

Communicate clearly and concisely, both orally and in writing.

Establish and maintain effective working relationships with those contacted in the course of the work.

Physical Demands and Work Environment:

While performing the duties of this job, the employee is regularly required to use hands to finger,

## Electrical/Instrumentation Technician

handle, or feel; reach with hands and arms; and talk and hear. The employee frequently is required to stand, walk, and sit. The employee is required to climb or balance; stoop, kneel, crouch, crawl; and smell. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and ability to adjust focus. The employee must be able to intermittently lift or carry weight of 25 pounds or less; and occasionally lift or carry tools and materials weighing up to 75 pounds. While performing the duties of this job the employee is exposed to outside weather conditions, wet and/or hot conditions, moving mechanical parts, fumes or airborne particles, toxic or caustic chemicals, and vibration. Work unusual or prolonged work hours. In an emergency work after scheduled hours, on weekends and holidays. The noise level in the work environment may be moderate to loud depending on working area. Must comply with respiratory program and Cal OSHA standards; may be required to enter confined spaces. Must be able to wear self-contained breathing apparatus (SCBA) and perform confined space entry and emergency response duties in protective clothing and equipment including SCBA weighing up to 32 pounds. Must be able to wear a respirator.

### **Qualifications**

#### Knowledge of:

Theory, practice, and principles of Water Recycling Facility instrumentation, controls, data acquisition systems, and electrical systems.

Methods, materials, tools, equipment, and practices used in the maintenance, calibration, testing, troubleshooting, and repair of instrumentation, controls, data acquisition systems, and electrical systems and components.

PLC and SCADA programming as applied to systems, controls, and equipment used in the Water Recycling Facility.

Industrial occupational hazards and appropriate safety precautions.

Office procedures, methods, and equipment including computers and applicable software applications such as word processing, spreadsheets, and databases.

#### Education and Experience

*Any combination equivalent to the education and experience likely to provide the required knowledge and abilities would be qualifying. A typical way to gain such knowledge and abilities would be:*

#### Education:

Equivalent to graduation from high school.

An Associate's degree with major course work in a related field; and/or An ISA Certified Control System Technician is highly desirable and preferred.

#### Experience:

Four years of journey level experience installing, maintaining, and repairing electrical, electronic, telemetry, metering and recording equipment and control systems, preferably in a manufacturing or production environment.

Modicon Quantum Concept and utility languages are highly desirable.

#### Certifications/Licenses:

Possession of a valid California Class C driver's license.

A Grade III Electrical/Instrumentation Technician certificate issued by the California Water Environment Association (CWEA) or ability to obtain within one year of employment.

Electrical/Instrumentation Technician

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