# WATER TREATMENT INSTRUMENT TECHNICIAN I/II

*Class specifications are intended to present a descriptive list of the range of duties performed by employees in the class. Specifications are **not** intended to reflect all duties performed within the job.*

## SUMMARY DESCRIPTION

Under supervision (Water Treatment Instrument Technician I) or general supervision (Water Treatment Instrument Technician II), performs a variety of skilled electrical/instrumentation duties involved in the installation, maintenance, calibration, and repair of electrical, instrumentation, and computer aided operating systems at the City's water treatment plant, distribution system, pump stations, chemical feed systems, potable water storage tanks, and sludge handling plant including SCADA control systems, telemetry systems, Programmable Logic Controllers (PLCs), motors, and other equipment related to the operation of treatment process.

## DISTINGUISHING CHARACTERISTICS

**Water Treatment Instrument Technician I** – This is the entry level class in the Water Treatment Instrument Technician series performing routine and less complex water treatment instrumentation duties while learning City policies and procedures. Positions at this level are not expected to function with the same amount of program knowledge or skill level as positions allocated to the Water Treatment Instrument Technician II level and exercise less independent discretion and judgment in matters related to work procedures and methods. Work is usually supervised while in progress and fits an established structure or pattern. Exceptions or changes in procedures are explained in detail as they arise. As experience is acquired, the employee performs with increasing independence and responsibility and is expected to be performing at the "II" or journey level within the prescribed time frame. Advancement to the "II" level is based on demonstrated proficiency in performing the full range of assigned duties, possession of required certifications, and is at the discretion of higher level supervisory or management staff.

**Water Treatment Instrument Technician II** – This is the full journey level class within the Water Treatment Instrument Technician series. Employees within this class are distinguished from the Water Treatment Instrument Technician I by the performance of the full range of duties as assigned including the more complex installation, maintenance, calibration, and repair of electrical, instrumentation, and computer aided operating systems and providing training to less experienced Water Treatment Instrument Technician. Employees at this level receive only occasional instruction or assistance as new or unusual situations arise, and are fully aware of the operating procedures and policies of the work unit. Work is normally reviewed only on completion and for overall results. Positions in this class are flexibly staffed and are generally filled by advancement from the Water Treatment Instrument Technician level, or when filled from the outside, require prior experience. Advancement to the "II" level is based on management judgment and/or certification or testing that validates the performance of the full range of job duties.

## REPRESENTATIVE DUTIES

*The following duties are typical for this classification. Incumbents may not perform all of the listed duties and/or may be required to perform additional or different duties from those set forth below to address business needs and changing business practices.*

1. Install, maintain, calibrate and repair electrical, instrumentation, and computer aided operating systems at the City's water treatment plant, distribution system, pump stations, chemical feed systems, potable water storage tanks, and sludge handling plant including SCADA control

systems, telemetry systems, Programmable Logic Controllers (PLCs), motors, and other equipment related to the operation of treatment process.

2. Make inspections and perform periodic preventive maintenance on various control metering recording and display equipment; clean, lubricate, calibrate and adjust equipment as needed.

3. Troubleshoot and diagnose electronic, electromechanical, and pneumatic instrumentation malfunction; complete component level repairs or advises system contractors of other repair requirements as appropriate.

4. Use software diagnostic routines and test equipment to verify and or adjust control system equipment according to manufacturer's recommendations.

5. Maintain, install, and repair multi-channel system radio and telephone systems.

6. Read and interpret wiring schematics, mechanical drawings, and specifications as necessary to install, service, and repair equipment in accordance with related regulations.

7. Perform minor electrical repairs as necessary.

8. Keep records and make verbal and written reports of work performed.

9. Assist Water Treatment Plant Maintenance Personnel as required.

10. Make basic decisions that will protect the integrity of the Water Treatment Plant, its equipment, and distribution system.

11. Perform related duties as required.

## QUALIFICATIONS

*The following generally describes the knowledge and ability required to enter the job and/or be learned within a short period of time in order to successfully perform the assigned duties.*

### Knowledge of:

- Operations, services, and activities of a water treatment system electrical/instrumentation maintenance and repair program.
- Principles, methods, procedures, materials, tools, and equipment used in the installation, maintenance, and repair of electrical/instrumentation devices, equipment, and systems including pneumatic controls, electrical controls, telemetry, testing, calibrating, and repair techniques.
- Principles and practices used in the installation, repair, and programming of SCADA, operator interface, and PLC computers.
- Equipment capabilities, limitations, and safe operating characteristics.
- Preventive maintenance applicable to electrical and instrumentation systems.
- Telecommunications operating systems and equipment.
- Methods and techniques of performing diagnostic troubleshooting services.
- Operational characteristics of wastewater treatment plant systems and equipment.
- Mathematical principles used in water reclamation system electrical/instrumentation maintenance.
- Occupational hazards and standard safety practices.
- Methods and techniques for basic report preparation and record keeping.

- Pertinent federal, state, and local laws, codes, and regulations including national electrical code.

**Ability to:**

- Perform a variety of skilled electrical/instrumentation installation, maintenance, and repair duties.
- Install, operate, maintain calibrate analyze, troubleshoot, test and repair instruments, telemetry, electrical, mechanical, pneumatic, hydraulic and electronic equipment forum in a modern water treatment plant.
- Troubleshoot and accurately diagnose electrical/instrumentation repair needs.
- Test, make repairs to, and perform preventive maintenance on electrical/instrumentation equipment used in the water treatment system.
- Install, modify, program, repair, and maintain programmable logic controllers, operator interface controls, monitors, and software associated with the hardware used by the City.
- Calibrate, align, and test a variety of systems designed to monitor treatment plant processes and activities.
- Operate a variety of electrical/instrumentation maintenance and repair equipment and tools in a safe and effective manner.
- Read and interpret gauges, meters, and other instrument readings and take effective course of action.
- Analyze a complex issue and develop and implement an appropriate response.
- Develop, evaluate and modify standard operating procedures, associated maintenance programs and databases.
- Apply applicable laws, codes and regulations.
- Understand and follow complex written technical instructions and diagrams.
- Read and understand technical manuals, blueprints, shop drawings, sketches, and wiring and pneumatic diagrams.
- Respond to emergency situations, including those outside of normal working hours, and determine an effective course of action.
- Compile data, maintain a variety of records, and prepare related reports.
- Perform math calculations related to water treatment system maintenance.
- Perform assigned work in accordance with appropriate safety practices and regulations
- Perform heavy manual labor.
- Successfully operate various software programs as required using computers or other types of hand held devices.
- Adapt to changing technologies and learn functionality of new equipment and systems.
- Work independently in the absence of supervision.
- Take coaching, instruction, and feedback with a cooperative and positive attitude.
- Understand and carry out oral and written directions.
- Respond courteously and appropriately to inquiries and complaints.
- Communicate clearly and concisely, both orally and in writing.
- Establish and maintain cooperative working relationships with those contacted in the course of work, including the ability to interact effectively and courteously with the public, coworkers and vendors.

## Education and Experience Guidelines

### Water Treatment Instrument Technician I

**Education/Training:**

Equivalent to the completion of the twelfth grade supplemented by specialized course work or training in the installation, maintenance, and repair of electrical/instrumentation

equipment and systems.

**Experience:**

Two years of experience maintaining, calibrating, installing, troubleshooting, and repairing electrical, pneumatic, and mechanical process control instruments.

**License or Certificate:**

Electrical/Instrumentation certification from an accredited instrumentation vocational school, or a Grade I Electrical/Instrumentation Technologist certificate issued by the California Water Environment Association, or an ISA Certified Control Systems Technician (CCST Level 1).

Possession of a Class C driver's license.

**Water Treatment Instrument Technician II**

**Education/Training:**

Equivalent to the completion of the twelfth grade supplemented by specialized course work or training in the installation, maintenance, and repair of electrical/instrumentation equipment and systems.

**Experience:**

Three years of increasingly responsible experience maintaining, calibrating, installing, troubleshooting, and repairing electrical, pneumatic, and mechanical process control instruments at a level comparable to a Water Treatment Instrument Technician I with the City of Antioch. Employees must demonstrate proficiency on a variety of skills/tasks to the satisfaction of the Division Manager prior to a recommendation being made to flex to the Technician II classification.

**License or Certificate:**

Electrical/Instrumentation certification from an accredited instrumentation vocational school, or a Grade 2 Electrical/Instrumentation Technologist certificate issued by the California Water Environment Association, or an ISA Certified Control Systems Technician (CCST Level 2).

Possession of a Class C driver's license.

## PHYSICAL DEMANDS AND WORKING ENVIRONMENT

*The conditions herein 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 disabilities to perform the essential job functions.*

**Environment:** Work is performed primarily at a water treatment plant with some travel to different field sites and locations; exposure to noise of plant machinery and other equipment, dust and grease, mechanical and electrical hazards of operating equipment, fumes and odors of sewage, chemicals, and gases, toxic substances such as chemicals, cleaners, solvents, and gases, and all types of weather and temperature condition; work in or around water; work and/or walk on various types of surfaces including slippery or uneven surfaces; occasionally works in confined spaces or on ladders/scaffolding. May be required to work weekends, nights, unusual shifts, or be subject to emergency recall.

**Physical:** Primary functions require sufficient physical ability and mobility to work at a water treatment plant; to walk, stand, and sit for prolonged periods of time; to frequently stoop, bend, kneel, crouch, crawl, climb, reach, and twist; to lift, carry, push, and/or pull light to heavy amounts

of weight; to operate assigned equipment and vehicles; and to verbally communicate to exchange information.

FLSA: Non-Exempt

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This class specification identifies the essential functions typically assigned to positions in this class. Other duties not described may be assigned to employees in order to meet changing business needs or staffing levels but will be reasonably related to an employee's position and qualifications. Other duties outside of an individual's skill level may also be assigned on a short term basis in order to provide job enrichment opportunities or to address emergency situations.