



# City of Tempe

## INSTRUMENTATION & CONTROL TECHNICIAN

JOB CLASSIFICATION INFORMATION			
<i>Job Code:</i>	412	<i>Department:</i>	Municipal Utilities
<i>Supervision Level:</i>	Non-Supervisor	<i>State Retirement Group:</i>	ASRS
<i>Status:</i>	Classified	<i>Market Group:</i>	Plant Operator II+
<i>Safety Sensitive / Drug Screen:</i>	Yes	<i>Physical:</i>	Yes
Click <a href="#">here</a> for more job classification information including current salary range.			

REPORTING RELATIONSHIPS
Receives supervision from the Plant Superintendent or other supervisory staff.

MINIMUM QUALIFICATIONS	
<i>Experience:</i>	Two (2) years of installation, troubleshooting, maintenance and repair of instrumentation and control-related equipment at a water or wastewater utility is preferred.
<i>Education:</i>	Equivalent to an associate degree with major course work in electronics technology, electrical technology or degree related to the core functions of this position.
<i>License / Certification:</i>	<ul style="list-style-type: none"> <li>● Possession of a valid driver’s license.</li> </ul> <p><b><u>When assigned to Field Sites:</u></b></p> <ul style="list-style-type: none"> <li>● Possession of or required to obtain within six (6) months of hire an Arizona Department of Environmental Quality ADEQ Grade 1 Wastewater Collection Certification and/or ADEQ Grade 1 Water Distribution Certification.</li> </ul> <p><b><u>When assigned to the Water Plants:</u></b></p> <ul style="list-style-type: none"> <li>● Possession of or required to obtain within six (6) months of hire an ADEQ Grade 1 Water Treatment Certification.</li> </ul>

ESSENTIAL JOB FUNCTIONS
Essential job functions are the fundamental duties of a position: the things a person holding the job absolutely must be able to do.

To actively support and uphold the City's stated mission and values. To perform complex technical work in the testing, installation, maintenance and repair of all pneumatic and electronic control systems and instruments relative to water and wastewater production and treatment operations. To provide technical support in the design, construction and modification of the supervisory control and data acquisition (SCADA) system and to install and maintain/service the remote telemetry units (RTU) that monitor and control water production and treatment functions. Positions in this class may be given the opportunity or be required to learn and perform duties in other skill/trade areas including electrical work, mechanical maintenance, water plant operations and/or wastewater plant operations.

## OTHER DUTIES AS ASSIGNED

Please note this job description is not designed to cover or contain a comprehensive listing of all activities, duties or responsibilities that are required of the employee for this job. Duties, responsibilities and activities may change at any time with or without notice.

- Follow safety regulations and safe work practices at facilities, including traffic/barricade compliance and confined space entry; adhere to all Occupational Safety and Health Administration and water treatment guidelines.
- Analyze instrument and control system malfunctions; install, maintain, repair and adjust computer system hardware and digital data multiplexing equipment used for indicating, telemetering, measuring and controlling flow, temperature, motion, force and chemical composition.
- Repair, maintain, install, troubleshoot and calibrate all types of process instrumentation used for monitoring water/wastewater parameters such as level, pressure, flow, chemical concentrations, turbidity and pH.
- Maintain a variety of electronic control devices/instruments used to operate electrical and mechanical equipment, record data, indicate equipment status and activate supervisory control; maintain and repair automatic control valves and associated control functions; modify and install a variety of supervisory controls including switches, relays and control loops.
- Design, build, program and modify system displays for the SCADA network; develop functional data base structures for SCADA systems and update the data base as required; operate and program portable computers, programable logic controller and other data communication devices.
- Respond to SCADA system user questions; identify SCADA system malfunctions and refer to Information Technology network administration staff or SCADA system vendor staff for resolution as appropriate.
- Design and modify RTU to provide control and monitoring functions required for water production and treatment processing; document program design and function procedures; design intuitive graphical user interfaces using control software.
- Design, install, maintain and modify RTU to provide timely and accurate data transmission to the host computer on water treatment facility monitoring points; specify and procure parts necessary to build and install RTU according to design specifications.
- Install RTU in field locations and terminate control and instrument wiring; inspect and test RTU functions to verify accurate data transmission between the RTU and host computer; coordinate appropriate communications interface for RTU in remote locations.

- Develop and write programs for local process control and monitoring and install programs in RTU; develop, recommend and install system enhancements to improve process monitoring and control functions; perform data entry as well as programming.
- Inspect, analyze and correct system problems to ensure continuous reliable operation of the SCADA system; inspect, maintain and repair low voltage electrical and control circuit wiring, PLCs, stand-alone controller, relays and switch logic.
- Participate in training other Water Division staff in the operation and use of the SCADA system; attend training sessions and technical meetings as required; read and interpret technical manuals relating to maintenance and enhancement of the SCADA system.
- Communicate with co-workers and supervisory personnel concerning routine and emergency system functions, maintenance and installation projects; communicate with outside vendors to help specify and procure instruments and related equipment as needed.
- Prepare reports of equipment use, time, materials, parts, supplies and facility equipment failures. Update work order status and condition information into the Computer Maintenance Management System (CMMS).
- Create, update, review and finalize work orders in CMMS.
- Perform Confined Space Entry duties as entrant, attendant and/or Authorized Entry Supervisor as plant duties necessitate.
- Repair sodium hypochlorite pumps, meters and generating equipment and controls.
- Read and interpret schematics, blue-prints and engineering drawings.
- Assist in the development of standard operating procedures (SOPs), job hazard analysis (JHAs), memos and reports.
- Adhere to SOPs, JHAs and Safety Data Sheets.
- Perform related duties as assigned.

## COMPETENCIES

<i>CLASSIFICATION LEVEL</i>	<i>INCLUDES</i>	<i>COMPETENCIES</i>
Foundational	All Employees	Inclusion, Communication, Interpersonal Skills, Integrity, Professionalism, and Willingness to Learn
Non-Supervisory	In Addition >	Teamwork, Customer Service, Initiative, and Dependability / Reliability
Supervisory	In Addition >	Staffing, Monitoring Work, Delegating, Development / Mentoring, and Support Others
Manager	In Addition >	Preparing / Evaluating Budgets, Monitoring / Controlling Resources, and Motivating / Inspiring
Deputy Director	In Addition >	Entrepreneurship and Networking
Director	In Addition >	Organizational Vision

*For more information about the City of Tempe's competencies for all classifications:*

[City of Tempe, AZ : Competencies](#)

## JOB DESCRIPTION HISTORY

*Effective February 2000*

*Revised August 2001*

*Revised July 2005 (license requirement)*

*Revised December 2016 (added physical/mental activities)*

*Revised March 2019 (PW Reorg – moved to Municipal Utilities Department)*

*Revised November 2022 (remove SBP, update reporting relationships, min qualifications and job duties)*

## PHYSICAL DEMANDS AND WORK ENVIRONMENT

**Job Title: Instrumentation & Control Technician**

**Job Code: 412**

VEHICLE OPERATION	YES	NO
Will this position drive a City vehicle?	X	
Will this vehicle require a Commercial Drivers License?		X

	Never	Occas.	Freq.	Contin.
	0% of time	1-35% of time	36-65% of time	66-100% of time

ENDURANCE				
Sit			X	
Stationary / Stand			X	
Move / Traverse			X	

WORK WITH OR EXPOSURE TO THE FOLLOWING				
Machinery*			X	
Electrical*				X
Power Tools*			X	
Hand Tools*			X	
Personal Protective Equipment*				X
Fumes			X	
Computer Software			X	
Chemicals			X	

ENVIRONMENT				
Indoors			X	
Outdoors			X	
Working in or around water				X
Extreme Heat			X	
Extreme Cold	X			
Office Setting		X		
Confined Spaces		X		
Excessive Noise**			X	
Heights		X		
Sewage Exposure		X		
Bodily Fluid Exposure	X			

VISION REQUIREMENTS	YES	NO
<b>Close</b> (clear vision at 20 inches or less)	X	
<b>Distance</b> (clear vision at 20 feet or more)	X	
<b>Color</b> (ability to identify and distinguish colors)	X	
<b>Depth Perception</b> (three-dimensional vision, ability to judge distances and spatial relationships)	X	
<b>Peripheral</b> (ability to observe an area that can be seen up and down or to the left and right while eyes are fixed on a given point)	X	
<b>Ability to adjust focus</b> (ability to adjust the eye to bring an object into sharp focus)	X	
<b>No Special Vision Requirements</b>	X	

Maximum LIFT / CARRY	Lift	Carry
5-25lbs		
26-50lbs	X	X
51-75lbs		
76-100lbs		

Maximum PUSH / PULL	Push	Pull
5-25lbs		
26-50lbs		
51-75lbs		
76-100lbs	X	X

MOVEMENT	YES	NO
Bend / Stoop / Twist	X	
Crouch / Squat	X	
Kneel / Crawl	X	
Above Shoulder Level	X	
Below Shoulder Level	X	
Repetitive Arm Use	X	
Repetitive Wrist Use	X	
Repetitive Hand Use	X	
Climb Stairs / Ladders	X	
Neck Range of Motion	X	
Traverse Uneven Surface	X	
Traverse Even Surface	X	

ADDITIONAL CONSIDERATIONS:
- Must be physically present
- May require working extended hours, including holidays, weekends, nights, and callbacks. Assignments require stand-by shifts outside the normal work schedule.
- May work alone for extended periods of time.
- Other mental attributes essential to this classification.

*DEFINITIONS/EXAMPLES
<b>Machinery:</b> bucket truck, riding mowers, backhoe etc.
<b>Electrical:</b> wiring, outlets, fuses etc.
<b>Power Tools:</b> push mowers, jackhammers, drills, chainsaw etc.
<b>Hand Tools:</b> hammers, wrenches, shovels, wheel barrels, saws etc.
<b>Personal Protective Equipment:</b> respirators, Tyvek coveralls, hard hats, fall protection harness etc.

**\*\* Hearing test is required**