

# PADRE DAM MUNICIPAL WATER DISTRICT CLASS SPECIFICATION

## CLASS TITLE: SCADA/Wireless Network/Security

<b>DEPARTMENT:</b> Operations & Water Quality	<b>ACCOUNTABLE TO:</b> Distribution Maintenance Manager	<b>FLSA STATUS:</b> Non-Exempt
<b>SALARY RANGE:</b>	<b>SCADA Technician (Grade 28), SCADA Administrator (Grade 32)</b>	

**CLASS SUMMARY:** Incumbent is responsible for performing skilled installations, maintenance, repairs and troubleshooting on Padre Dam’s Supervisory Control and Data Acquisition (SCADA) systems; field security systems, field wireless network systems, and all related control, communications, and security sub systems and equipment. Duties include but are not limited to: Install, maintain, and service Padre Dam’s Human Machine Interface (HMI) software and hardware, including software upgrades; design and development of new HMI screens; development and servicing of interfacing software and program historical software; design and develop complex Programmable Logic Controller (PLC) software programs; configure, diagnose, install, maintain, troubleshoot and repair PLC hardware and software programs, network equipment, radio hardware and software, cellular and other related operational control, networking and security hardware as necessary. Document and organize software and hardware procedures and programs in accordance with industry best practices; respond to emergencies as needed; and other duties as may be assigned.

**DISTINGUISHING CHARACTERISTICS:** This is a stand-alone broadband classification that encompasses one position with two grades for career development. This position works primarily with SCADA related computer controls, PLCs, communication and security systems. This position works in coordination with the Districts Information Systems department to ensure computing and network security best practices are applied consistently. A person in the Technician Grade spends 80% of their time on SCADA related job duties and the other 20% of their time on field installations and maintenance of security equipment. In contrast, the Administrator Grade level would spend approximately 70% of time on SCADA related job duties and 30% of their time on wired and wireless network security configuration, monitoring and maintenance.

Grade 28	Grade 32	DUTY NO.	<b>ESSENTIAL DUTIES:</b> (These duties are a representative sample; position assignments may vary.) Duties may vary as technology changes and new systems become viable for control, communication and security.
C	P	1.	Install, troubleshoot, maintain and repair control, communication and security systems including but not limited to: Remote Terminal Units (RTU’s), PLC, radio and cellular equipment, power supplies and various Input/output (I/O) components such as analog inputs and outputs and graphic touchscreen terminals; computer systems and related hardware for SCADA; components for security such as cameras, radio and cellular communication; Power over Ethernet (POE) devices; and Local Area Network (LAN) hardware.
C	P	2.	Programs Remote Terminal Unit (RTU) systems: designs both simple and complex PLC programs to fit the needs of Padre Dam; modifies PLC software to improve and/or enhance current operation in order to provide for changes to existing operations that improve and/or enhance operations, control strategies, and/or reliability. Designs graphic screens for touchscreen terminals. Performs needed organization, maintenance and back up of data to ensure proper documentation and reliability of systems.

# PADRE DAM MUNICIPAL WATER DISTRICT CLASS SPECIFICATION

## CLASS TITLE: SCADA/Wireless Network/Security

Grade 28	Grade 32	DUTY NO.	<b>ESSENTIAL DUTIES:</b> (These duties are a representative sample; position assignments may vary.) Duties may vary as technology changes and new systems become viable for control, communication and security.
C	P	3.	Programs HMI systems: uses HMI software to design, implement, and maintain graphic screens, alarms, historical data, trending, enhance and/or improve current information presented in the HMI interface.
	P	4.	Programs and specifies networking equipment and related systems to maintain reliable passage of information utilizing modems, routers, switches, radios, cellular links, cables and associated devices.
C	P	5.	Researches and evaluates new operational methods, techniques and equipment and recommends their application. Provides control, communications and security related advanced technical assistance and advice to other departments.
C	P	6.	Prepares and provides effective training classes for Padre Dam personnel. Creates schedules for preventative maintenance routines and adjusts as needed. Recommends and purchases all hardware components for new installation and spare parts.
C	P	7.	Sets up SCADA workstations, servers, routers, wired/wireless connections and security; Configures managed network switches and routers. Maintains and backs up managed network switches and routers configurations.
	P	8.	Provides project management of internal upgrades and system enhancements. Oversees contracted related programs and projects. Provides engineering support and plan and specification review. Designs new RTU's for engineering projects, provides RTU CAD drawings, bill of materials, and interconnect wiring drawings for new projects and modifications to existing RTU's.
C	P	9	Assembles and wires complete RTU cabinets per drawings and specifications.
C	P	10.	Maintains library of manuals, license agreements, license upgrades and product warranty information in both electronic and hardcopy format.
C	P	11.	Maintains a working knowledge of computer operating systems to integrate hardware/software with SCADA systems. Has the ability to configure LAN and USB ports to interface with SCADA, security and configuration software. Installs and activates approved software on SCADA related computers. Uses programs such as Excel, Word, CAD, etc. to document and develop meaningful reports, drawings, etc. of software and hardware related to duties. Maintains all computers/servers related to SCADA.
C	p	12.	Responds to both on-duty and after-hour systems emergencies; coordinates and completes any necessary repairs.
	P	13	Designs and configures wired/wireless networks for individual sites including developing IP addresses, and line of site radio paths. Configure, deploy and

# PADRE DAM MUNICIPAL WATER DISTRICT CLASS SPECIFICATION

## CLASS TITLE: SCADA/Wireless Network/Security

Grade 28	Grade 32	DUTY NO.	<b>ESSENTIAL DUTIES:</b> (These duties are a representative sample; position assignments may vary.) Duties may vary as technology changes and new systems become viable for control, communication and security.
			wire hardware on site. Install, aim and wire cameras, IR lights and POE. Works closely with the Information Systems Department to adhere to their network design and expansion.
C	P	14.	Attend additional training based on job needs and/or under supervisor direction.

(C) Competent - Having requisite or adequate ability or qualities.

(P) Proficient - A through competence derived from training and practice. Has the ability to train others.

Note: The SCADA position is a broadband, and the department policy has always been that a promotion through each step is not automatic. Each employee must demonstrate proficiencies at each step on a consistent basis before a promotion is recommended. The SCADA technician will be required to demonstrate proficiency in a salary grade before a promotion will be considered. Ultimately, the recommendation from the supervisor will require approval from both the Department head and the General Manager.

**Knowledge** (position requirements at entry unless specified with (A) which would be required after 5 years.)

- Supervisory Control and Data Acquisition (SCADA) systems;
- Electrical principles and practices; AC & DC power;
- Electronic equipment including PLCs, radios, routers, switches, modems, cellular, security cameras, HMI displays, and associated I/O devices;
- Advanced knowledge of computer operating systems
- Complex ladder logic and PLC programming; (A)
- Instrumentation & process control standards and practices; (A)
- Radio and communication systems and related equipment (A)
- Process control systems and related equipment
- Electronic measuring equipment used in wastewater treatment plants and water distribution systems
- Wireless Network Security
- Network communication (HTTP, TCP/IP), network security (HTTPS, SSL, SFTP) and network management protocols (SNMP and ICMP).

**Skills** (position requirements at entry unless specified with (A) which would be required after 5 years.)

- Installing, troubleshooting, and repairing problems with electronic equipment;
- PLC's and writing control logic;
- Calibrating and servicing of electronic equipment;
- Reading maps, blueprints, ladder, and wiring diagrams;
- Using electrical and electronic equipment such as digital volt meters, analog simulators, and hand and power tools;
- Understanding of water and wastewater control and process systems (A)
- Network Security (A)
- Using computers and related software applications;
- Communication, interpersonal skills as applied to interaction with coworkers, supervisor, the public, etc. sufficient to exchange or convey information and to receive work direction.

# PADRE DAM MUNICIPAL WATER DISTRICT CLASS SPECIFICATION

## CLASS TITLE: SCADA/Wireless Network/Security

### Training and Experience (position requirements at entry):

- Minimum of an Associate's degree from an accredited college in water technology, electronics technology, computer sciences, information technology or related field, and three years journey level experience in the above duties OR;
- High School Diploma or General Equivalency Diploma (G.E.D.) and five years of journey-level experience in the above duties OR;
- An equivalent combination of education and experience sufficient to successfully perform the essential duties of the job such as those listed above.

To advance through the SCADA position and move from Technician to Administrator, a person needs a minimum of 5 years of on the job experience at Padre Dam as well as advanced knowledge of wireless networks, security systems and related technologies.

### Licensing Requirements (position requirements at entry):

- Valid California Driver's License;
- California Department of Public Health, Water Distribution Certification Grade I, (within two test cycles from date of hire);
- Certified Control Systems Technician from ISA highly desired.

**Safety Priorities:** Knowledge of use and care of personal protective equipment specifically related to electrical safety and chemical exposure, safe use and care of hand and power tools, proper body mechanics when moving materials, safety when working around traffic in the public right of way, defensive driving techniques and general office and field safety. Understanding of Padre Dam's Safety Rules and Regulations and accident and injury reporting policies. Ability to complete safety training and work in a safe and efficient manner at heights and under other adverse conditions.

### Physical Requirements:

Positions in this class typically require: climbing, balancing, stooping, kneeling, crouching, reaching, standing, walking, lifting, fingering, grasping, feeling, talking, hearing, seeing, sitting and repetitive motions.

Incumbents may be subjected to moving mechanical parts, electrical currents, vibrations, fumes, odors, dusts, oils, and work space restrictions. Incumbents may from time to time work at elevated levels up to 45 feet above ground.

Heavy Work: Exerting up to 100 pounds of force occasionally, and/or up to 50 pounds of force frequently, and/or up to 20 pounds of forces constantly to move objects.

### Classification History:

Date: 5/08; 8/09, 01/16, 06/19