

CITY OF MADISON  
**INTER-DEPARTMENTAL**  
CORRESPONDENCE

DATE: March 13, 2008

TO: Personnel Board

FROM: Larry Oaks, Human Resources

SUBJECT: **Waterworks Maintenance Worker/Operator Series**

The Water Supply Section of the Madison Water Utility is in large part responsible for monitoring and controlling the City's water supply. The operational elements of this work are accomplished by three positions of "Waterworks Maintenance Worker" (16/09), a "Waterworks Operator 1" (16/12) and five positions of "Waterworks Operator 2" under the supervision of the "Water Supply Manager." Within this structure, the Waterworks Maintenance Workers perform the more routinized inspection and maintenance at the various well sites, the "Waterworks Operator 1" performs incrementally more difficult maintenance assignments and supports and trains under the Waterworks Operator 2's who serve as the operator in charge of a shift, and perform associated leadership responsibilities.

In consultation with the union, an agreement has been reached to integrate the Waterworks Maintenance Worker and Waterworks Operator 1 into a career ladder. This option will provide for greater flexibility for the employer, establish a format and method for employees to gain the necessary credentials, and clarify avenues for advancement.

To facilitate this initiative, I have updated the class specification accordingly (attached) and propose that the three positions of Waterworks Maintenance Worker be reclassified to Waterworks Operator 1 (these positions will be underfilled and/or incumbents advanced consistent with the provisions of the labor agreement).

I have prepared the necessary resolution to implement this recommendation.

Attachments

cc: Mike Deiters, Labor Relations  
Larry Nelson, Water Utility

Compensation Group/Range	2007 Annual Minimum (Step 1)	2007 Annual Maximum (Step 5)	2007 Annual Maximum (w/Longevity)
16/09	37,916	42,423	47,502
16/12	41,294	45,810	51,298
16/15	44,620	50,486	56,550

# WATERWORKS MAINTENANCE WORKER AND OPERATOR SERIES

## CLASS DESCRIPTION

### General Responsibilities:

This class series describes specialized work performed in association with the monitoring and control of the City of Madison's water supply system. This series is structured to provide for career progression from Waterworks Maintenance Worker to Waterworks Operator 1 based on increased employee expertise and responsibility, independence of action and experience in and knowledge of systems and processes associated with the work and attainment of Wisconsin Water Operator certification (subclasses G & D). Progression to the Waterworks Operator 2 is normally contingent upon budgeted vacancies and is accomplished by competition.

The various levels in this series are structured as follows:

### Waterworks Maintenance Worker

This is entry-level work performing routine, proceduralized tasks to monitor and maintain water supply facilities, equipment and instrumentation to ensure proper, secure operation. The Waterworks Maintenance Worker independently performs monitoring activities at remote sites, communicates findings from each site to Waterworks Operator 1 or 2 and makes adjustments to equipment and instrumentation as instructed. The work is structured to provide increased independence of action as expertise is gained through on-the-job training and experience. Waterworks Maintenance Workers are advanced to Waterworks Operator 1, as a function of this expertise, in combination with the achievement of required certification.

### Waterworks Operator 1

This is intermediate-level work monitoring, controlling and maintaining water supply facilities, equipment and instrumentation to ensure proper, secure operation. Assignments are received from a Waterworks Operator 2 who provides direction of work in progress and who certifies the results. The Waterworks Operator 1 independently performs monitoring activities at remote sites, communicates findings from each site to Waterworks Operator 2 and makes adjustments to equipment and instrumentation in consultation with the Operator 2; assists the Electronics Maintenance Technician in the maintenance, repair and installation of remote facility instrumentation and controls; and functions as the operator-in-charge in relief of the Waterworks Operator 2 in a training capacity. The work is characterized by the application of expanded technical expertise encompassing both theoretical concepts and operational considerations gained through experience.

### Waterworks Operator 2

This is journey-level and leadership work functioning as the Madison Water Utility's certified operator-in-charge to monitor and control the water supply, transmission and storage systems through a supervisory control and data acquisition (SCADA) system to ensure

proper, secure operation. The work is characterized by the application of technical judgment, the broader application of technical expertise and proficiency in the operational and procedural aspects of the work. Positions in this class are responsible for the safe and efficient operation and control of the City's water supply. Work is performed under the general supervision of the Water Supply Manager.

#### Examples of Duties and Responsibilities:

##### Waterworks Maintenance Worker

Perform daily on-site monitoring of water supply facilities, equipment and instrumentation at remote sites to ensure proper, secure operation. Accurately read, report and record data from a variety of analog and digital meters, gauges, scales, controls and instrumentation. Compare readings to those from prior day and established parameters to identify potential and existing problems in the operation of facility equipment. Make adjustments to equipment, instrumentation and controls. Use hand-held instrument per established standard operating procedure to confirm accuracy of residual chlorine level displayed by chlorine analyzer at each assigned facility. Report readings and settings to Operator 2.

Provide for the safe storage, handling and transport of chlorine.

Inspect interior and exterior of assigned facilities to identify security, safety and/or general maintenance/housekeeping issues. Perform cleaning and restocking of assigned facilities.

Participate in all work of a Waterworks Operator 1 in a training capacity in order to achieve fully developed skills.

Perform water quality sampling.

Perform related work as required.

##### Waterworks Operator 1

Perform daily on-site monitoring of water supply facilities, equipment and instrumentation at remote sites to ensure proper, secure operation. Accurately read, report and record data from a variety of analog and digital meters, gauges, scales, controls and instrumentation. Compare readings to those from prior day and established parameters to identify potential and existing problems in the operation of facility equipment. Make adjustments to equipment, instrumentation and controls. Use hand-held instrument per established standard operating procedure to confirm accuracy of residual chlorine level displayed by chlorine analyzer at each assigned facility. Report readings and settings to Operator 2.

Function as the Utility's certified Operator-In-Charge in relief of Waterworks Operator 2.

Perform equipment maintenance and troubleshooting. Use Secondary Standards on a monthly basis to check assigned pocket colorimeter instrument against baseline. Record readings. Perform basic troubleshooting and make adjustments to chlorine analyzers.

Assist Electronics Maintenance Technician with the maintenance, repair and installation of remote facility instrumentation and controls.

Provide for the safe storage, handling and transport of chlorine.

Inspect interior and exterior of assigned facilities to identify security, safety and/or general maintenance/housekeeping issues. Perform cleaning and restocking of assigned facilities.

Perform water quality sampling.

Perform related work as required.

### Waterworks Operator 2

Function as the Madison Water Utility's operator-in-charge (as defined by the State of Wisconsin). Monitor and control the water supply, transmission and storage systems through a supervisory control and data acquisition, SCADA, system. Analyze and act appropriately to control treatment, flow and storage through various transmission and distribution facilities and take other actions as required.

Operate all equipment related to the management of residuals generated from all treatment processes in order to meet production requirements and drinking water quality standards. Determine the level of fluoride from samples taken from the various stations using calibrated equipment. Report the results of the water testing. Inform the Water Supply Manager if the chemical levels are outside of predetermined parameters. Compute chemical doses and adjusts chemical feeders.

Make decisions that involve the quality and quantity of water treated and delivered. Detect and correct any problems. Acknowledge and respond to alarms; take corrective action as required. Respond effectively to unscheduled shut downs of any of the Utility's facilities.

Oversee the operations of all security procedures.

Record and report functions such as daily logs of system operations, laboratory test results, maintenance work performed and unusual operating conditions. Perform calculations such as pumpage, efficiency ratios, etc. Work with computers to maintain database files and reports. Generate work orders. Make periodic inspections and prepares appropriate reports as required. Write memos and create graphs and charts based on the data.

Under general supervision, provide lead direction, training and work review for Water Supply staff.

Assist in the oversight of the administrative aspects of operating facilities and the water supply system. Complete monthly reports, time sheets, inventory records and work orders. Call in staff as necessary to assure adequate coverage of shifts. Coordinate review and update of standard operating procedures. Take regular inventories of chemicals and other supplies used during the operation of facilities. Order operating supplies and chemicals.

Serve as in-house hands on experts on water supply systems operations. Serve on in-house teams to conduct studies and analyses. Prepare reports and recommendations designed to optimize operations.

Operate Utility's communications center during off hours, weekends, holidays and as needed. Receive calls from 911 and the general public related to main leaks, service leaks, hydrant problems, frozen pipes, other water supply problems, sewer back ups, flooding, road hazards, etc. Dispatch personnel. Call in staff for overtime to respond to calls. Communicate with On-Call Manager. Process emergency locate requests from Diggers Hotline. Maintain telephone and radio communications with field employees, security forces and others.

Perform related work as required.

## QUALIFICATIONS

### Knowledges, Skills and Abilities:

#### Waterworks Maintenance Worker

Some knowledge of pumps, motors, instrumentation and other related equipment found in pumping and booster stations. Ability to check and detect flaws in equipment operation within procedural practices; ability to adjust instruments and equipment. Ability to use basic hand tools. Some knowledge of waterworks occupational hazards and necessary safety precautions. Ability to perform water sampling procedures and maintain sample integrity. Ability to accurately record data and maintain records. Ability to make related mathematical computations. Ability to read and understand maps. Ability to effectively communicate findings from the field. Ability to understand and follow oral and written instructions. Ability to establish and maintain effective working relationships. Ability to communicate effectively, both orally and in writing. Ability to perform manual labor in all weather conditions. Ability to lift up to 50 pounds and safely transport 150 lb chlorine cylinders. Ability to operate a motor vehicle. Ability to maintain alertness at all times of the day or night. Ability to maintain adequate attendance.

#### Waterworks Operator I

Working knowledge of the principles, practices and techniques involved in the operation of potable water supply and SCADA systems. Working knowledge of waterworks occupational hazards and necessary safety precautions. Ability to determine the working condition of equipment, detect defects in operation, and direct appropriate corrective action. Ability to act quickly and calmly and exercise judgment in emergencies. Ability to perform water sampling procedures and maintain sample integrity. Ability to accurately record data and maintain records. Ability to make related mathematical computations. Ability to read and understand maps. Ability to effectively communicate findings from field. Ability to effectively use a variety of related computer applications including, but not limited to SCADA and GIS. Ability to understand and follow oral and written instructions. Ability to establish and maintain effective working relationships. Ability to communicate orally and in writing. Ability to perform manual labor in all weather conditions. Ability to lift up to 50 pounds and safely transport 150 lb chlorine cylinders. Ability to operate a motor vehicle. Ability to maintain alertness at all times of the day or night. Ability to maintain adequate attendance.

## Waterworks Operator 2

Thorough knowledge of the principles, practices and techniques involved in the operation of potable water supply and SCADA systems. Working knowledge of waterworks operation, occupational hazards and necessary safety precautions. Ability to determine the working condition of equipment, detect defects in operation, and direct appropriate corrective action. Ability to act quickly and calmly and exercise judgment in emergencies. Ability to oversee the work of Waterworks Maintenance Workers and Operator Is and recognize and rectify system problems. Ability to maintain alertness at all times of the day or night. Ability to operate a motor vehicle. Ability to effectively use a variety of computer applications including, but not limited to SCADA, GIS, databases, spreadsheets, etc. Ability to use general office equipment. Ability to perform related mathematical calculations and to record data on charts and in memos. Ability to communicate effectively, both orally and in writing. Ability to establish and maintain effective working relationships. Ability to maintain adequate attendance.

## Training and Experience:

### Waterworks Maintenance Worker

Six months of experience in the operations and/or maintenance of waterworks facilities or equivalent. Such experience would be normally gained after graduation from high school (including related mathematics). Other combinations of training and/or experience, which can be demonstrated, to result in the possession of the knowledges, skills and abilities necessary to perform duties of the position will also be considered.

### Waterworks Operator 1

Three years of experience in the operations and/or maintenance of waterworks facilities including at least 18 months as a City of Madison Waterworks Maintenance Worker or equivalent. Such experience would be normally gained after graduation from high school including at least one year of mathematics. Other combinations of training and/or experience, which can be demonstrated, to result in the possession of the knowledges, skills and abilities necessary to perform duties of the position will also be considered.

### Waterworks Operator 2

Three years of experience in the operations and/or maintenance of waterworks facilities including at least 18 months as a City of Madison Waterworks Operator I or equivalent. Such experience would be normally gained after graduation from high school (including related mathematics). Other combinations of training and/or experience, which can be demonstrated, to result in the possession of the knowledges, skills and abilities necessary to perform duties of the position will also be considered.

Necessary Special Qualifications:

Waterworks Maintenance Worker

Possession of, or the ability to acquire during the six month probationary period, a Class C Commercial Driver's License with an H endorsement.

Waterworks Operator 1

Possession of a Class C Commercial Driver's License with an H endorsement and Wisconsin Water Supply Operator Certification (Subclasses D & G) and other subclasses as may become necessary based on changes in EPA and/or Wisconsin DNR requirements and changes/additions to Madison Water Utility facilities.

Waterworks Operator 2

Possession of a Wisconsin Water Supply Operator Certification (Subclasses D & G) and other subclasses as may become necessary based on changes in EPA and/or Wisconsin DNR requirements and changes/additions to Madison Water Utility facilities.

<b>Department/Division</b>	<b>Class Title</b>	<b>Comp. Group</b>	<b>Range</b>
Water Utility	Waterworks Maintenance Worker	16	09
Water Utility	Waterworks Operator 1	16	12
Water Utility	Waterworks Operator 2	16	15

Approved: \_\_\_\_\_  
Brad Wirtz  
Human Resources Director

Date