

08-08

**ROGERS WATER UTILITIES WATER SYSTEM  
ROGERS, ARKANSAS**

**SPECIFICATIONS FOR WATER  
MAIN DISINFECTION  
REVISED APRIL 2006**

1. **SCOPE**

This specification governs the disinfection of water mains, valves and appurtenants used for potable water and the disinfection of fire lines from the demarcation valve to the blind flange on the fire system riser.

2. **GENERAL REQUIREMENTS**

- a. Water mains/fire lines shall be disinfected upon the completion of the hydrostatic (pressure) testing of the water mains/fire lines.
- b. All water mains and fire lines shall be disinfected in accordance with the requirements of ANSI/AWWA C651-05 using the Continuous Feed Method, except as specified otherwise herein.
- c. The chlorine compound used for disinfection shall be calcium hydrochlorite in granular form. The calcium hydrochlorite must contain a minimum of 65 percent available chlorine by weight and must conform to ANSI/AWWA B300.
- d. The final concentration of the chlorine solution within the newly constructed water main(s) shall be 50 milligrams per liter (mg/l) and the chlorine residual of the treated water at the end of the 24 hour contact (holding) time shall not be less than 25 mg/l.
- e. RWU personnel must operate the water main valve connected to the existing water system for flushing, disinfection and sampling for the pipe network being disinfected. The Contractor shall operate all other water main valve(s) and fire hydrant(s) within the pipe network being disinfected.
- f. The Contractor shall maintain the bagged fire hydrant(s) within the pipe network being disinfected until the water main(s) has *passed* the disinfection test.
- g. The Contractor shall furnish test corporation(s) for disinfection purposes at the beginning of the newly constructed water main(s) that is located not more than 10 feet from the beginning of the newly constructed water main(s). The Contractor

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- shall be responsible for any holes excavated and/or left open for disinfection purposes.
- h. The Contractor shall furnish all equipment, labor, calcium hydrochlorite, Arkansas Department of Health and Human Services (ADHHS) sample bottles, necessary piping/hoses, injector booster pump with a measuring meter, chlorine solution container, a chlorine test kit (Hach test kit Model CN-66 or equal) and fire hydrant flow deflectors. The measuring meter dial shall be in 0.10 gallons increments.
  - i. The disinfection of water main(s) shall be performed by the Contractor and witnessed by the Engineer and the RWU personnel. RWU will furnish copies of the ADHHS bacteriological test reports of water main(s) to the Contractor and Engineer.
  - j. The Contractor shall be responsible for the procurement of all necessary permits and compliance from the Arkansas Department Environmental Quality (ADEQ) and the United States Corps of Engineer for the disposal of highly chlorinated water from the pipe network being disinfected.
  - k. The Contractor shall be responsible for all erosion damage and any downstream flood damage caused by his flushing operation.
  - l. The cost of water main disinfection including test corporation(s) for disinfection purposes, bagging and unbagging fire hydrants and water sampling is incidental to the cost of the project.

**3. DISINFECTION PROCEDURES**

- a. RWU personnel will open the water main valve that is connected to the existing water system while the Contractor manipulates the water main valve(s) and fire hydrant(s) within the pipe network being disinfected to ensure that the 50 mg/l concentration has been attained. Care shall be taken to prevent the treated water in the pipe network being disinfected from flowing back into the existing water system.
- b. Before the water main(s) are disinfected, the Contractor shall flush the water main(s) to remove trapped air, debris and other particulates through the connected the fire hydrants(s) of the pipe network being disinfected. The flushing velocity in the water main(s) shall not be less than 2.5 feet per second unless RWU personnel determines that the existing water system pressures are falling below 40 pounds per inch.

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- c. The Contractor shall then introduce the chlorine solution at the determined test corporation by means of the injection booster pump at a continuous flow until the 50 mg/l concentration is attained throughout the pipe network being disinfected. A 50 mg/l concentration will be dark red or purple color indication with the test kit. The Engineer must witness the chlorine residual reading by the Contractor.
- d. The treated water shall remain in the pipe network for a 24 hour holding time. After the 24 hour holding time, the Contractor shall measure the chlorine residual of the treated water at the sampling point(s). If the chlorine residual of the treated water is less than 25 mg/l, the disinfection of the pipe network shall be repeated. A 25 mg/l concentration will be dark red or purple color indication with the test kit. The Engineer must witness the chlorine residual reading by the Contractor.
- e. The Contractor shall flush the treated water from the pipe network being disinfected through the connected the fire hydrants(s) until the chlorine residual is less than 1.3 mg/l. The Engineer and RWU personnel must witness the chlorine residual reading by the Contractor.
- f. After final flushing of the pipe network being disinfected, The Contractor shall collect the water samples from the test sample point(s) and Engineer and RWU personnel must witness the sampling. Water samples collected at 24 hours apart shall be taken by the Contractor and submitted for analysis to the ADHHS.
- g. If any of the water samples collected by the Contractor are *failed* by the ADHHS, the disinfection procedure shall be repeated.

4. **ACCEPTANCE**

The disinfection of the newly constructed water main shall have passed the bacteriological testing if two consecutive water samples (24 hours apart) indicted that the water is safe for public consumption by the ADHHS. After *passing* the disinfection test for the pipe network being disinfected, RWU personnel must perform the operating of water main valve(s) within said pipe network. The Contractor shall unbag all fire hydrants connected to the pipe network *passing* the disinfection test.

**Previous Specifications**

April 16,1997