

AWU CRITERIA CHANGES

- I. Revision adopted 2-24-2010
- II. Formatted version not yet posted on publishing site. Adopted version in legislative format is available at: <http://www.ci.austin.tx.us/development/> (near the bottom) select “Rule adoptions 2008-2009”, “Back Up Material for R161-10.01” (near the bottom)
- III. Main changes
 - a. Added sections on Reclaimed water
 - b. Revised Private Plumbing section to clarify cross-connection standards
 - c. Increased threshold for PRV’s on FH’s to 150 psi
 - d. Joint restraint issues addressed
 - e. Easement requirements added
- IV. Next round of revisions
 - a. Eric Langhout is the AWU Criteria Committee Chair
 - b. Profiling of 8” watermains

AWU DISINFECTION PLANS AS OF APRIL 1, 2010

- I. CONTINUOUS-FEED METHOD
(UP TO 16" DIAMETER)
- II. TABLET/GRANULE METHOD
(UP TO 16" DIAMETER)
- III. SLUG METHOD (24" AND
LARGER)

Disinfection Plan
Newly Constructed Potable Water Mains
Continuous Feed Method
(Up to 16" Diameter)
Austin Water Utility

Project Name: _____
SP # or CIP ID _____
Engineering Firm _____
Engineer of Record _____
Contractor _____
Disinfection Contractor _____
City of Austin Inspector _____
Prepared by _____
Preparer's Telephone _____

With the submittal of this plan, include a copy of the waterline sheets. Make sure the sheets include the WL stationing and show callouts for appurtenances. Please include all backup documentation to support the chlorination and dechlorination chemicals.

Project Description (LF, pipe diameter, pipe capacity)

_____ LF _____ Inch Waterline Capacity _____ gallons

Section 1. Preparation

Section 1.A. Preventative and Corrective Measures during Construction

Proper precautions shall be taken to assure the pipe remains clean and dry during construction including but not limited to those preventative and corrective measures indicated in section 4.3 of AWWA C651-05.

Section 1.B. Measurement of Water used in Disinfection Process

All water used in the process shall be measured. Measurement shall be accomplished by filling out the attached "Volume of Water used for Flushing" spreadsheet. Payment for water use will not be required by the construction contractor.

Volume of Water Used for Flushing					
Project Name:					
SP or CIP ID#:					
Disinfection Contractor:					
Flushing Date:					
Flushing Street Address:					
City of Austin Inspector:					
Flushing Outlets	Outlet dia (in)	Pressure (psi)	Flow (gpm)	Time Flushing (minutes)	Volume (gallons)
1			0.00		0.00
2			0.00		0.00
3			0.00		0.00
4			0.00		0.00
5			0.00		0.00
6			0.00		0.00
7			0.00		0.00
8			0.00		0.00
Total Volume					0.00
Notes:					
1. Fill out the cells in yellow					
2. If no pressures are indicated on the plans, the pressure given on the nearest intersection map may be used.					
3. Use one page per flushing; if second flushing is required, use additional page. This includes pre-flushing of source water, preliminary flushing (continuous feed method only), final flush and reflushing if necessary.					
AWU contact:					
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Section 6. Continuous Feed Disinfection

Section 6.A. Chlorine

Amounts of chemicals required to neutralize various residual chlorine concentrations in 100,000 gallons of water. Table below from Appendix B AWWA C651-05 – User should confirm required dosage with chemical supplier.

Desired Chlorine Concentration In Water mg/L	Liquid Chlorine Required lb	<u>Sodium Hypochlorite Required</u>			<u>Calcium Hypochlorite Required</u>
		5% Available Chlorine gal	10% Available Chlorine gal	15% Available Chlorine gal	65% Available Chlorine lb
2	1.7	3.9	2.0	1.3	2.6
10	8.3	19.4	9.9	6.7	12.8
50	42.0	97.0	49.6	33.4	64.0

Sodium hypochlorite or calcium hypochlorite solution conforming to ANSI/AWWA B300 and NSF 61 containing approximately 5 to 15 percent available chlorine.

Type of Chemical to be used _____
 Available chlorine by volume _____ %
 Manufacturer _____ (provide MSDS)
 Pipe Capacity _____ gal
 Quantity of Chlorine feed _____ gal or lb

Section 6.B. Chlorine Injection

A chlorine injection point shall be located not more than 10 feet downstream of the temporary flushing connection.

Chlorine Injection point shall be through

_____ Temporary Injection point installed at Sta _____

OR

_____ New Water Service at Sta _____

Water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 25 mg/L (ppm) of free chlorine. Chlorine shall be measured at regular intervals using appropriate chlorine test kits. Chlorine application shall not cease until the entire main is filled with heavily chlorinated water. (min 25 mg/L). If multiple discharge locations are being used, please provide a sequence of

Water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 25 mg/L (ppm) of free chlorine. Chlorine shall be measured at regular intervals using appropriate chlorine test kits. Chlorine application shall not cease until the entire main is filled with heavily chlorinated water. (min 25 mg/L). If multiple discharge locations are being used, please provide a sequence of chlorination and dechlorination that describes when valves and end of line locations will be opened and closed so that all pipe sections received the required amount of chlorine.

Sequence (if applicable)

Section 6.C. Disinfection of Appurtenances

Disinfection of appurtenances shall occur while new main is heavily chlorinated by operating all valves, hydrants, and service connections to ensure contact with the chlorinated water.

Appurtenances

Sta	Description	Operated (Check when operated)
—		
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—		
—		
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Section 6.D. Hold superchlorinated water

Hold superchlorinated water in the main for a minimum of 24 hours. At the end of 24 hours, the treated water in all portions of the main shall have a residual of not less than 10 mg/L (ppm) of free chlorine.

Section 3.B. Tablet Method

Calcium Hypochlorite Tablets

5-g calcium hypochlorite tablets shall be placed in each section of pipe (number of tablets per section shall comply with following table).

Main size _____ length of sections _____

Pipe Diameter (inches)	Length of Pipe Section (ft)	
	18	20
	Number of 5-g Calcium Hypochlorite Tablets *3.5 g available Chlorine per tablet (70%)	
4	1	1
6	1	1
8	2	2
12	4	4
16	6	7

Additionally, one tablet shall be placed in each hydrant, hydrant branch, and other appurtenance as indicated below:

Station	Description

Tablets shall be attached by a food-grade adhesive. Adhesive shall be only on the broadside of the tablet attached to the surface of the pipe. The tablets shall be attached to the top of the main. If the tablets are attached before the pipe section is placed in the trench, their position shall be marked on the section to indicate that the pipe has been installed with the tablets at the top.

Section 3.C. Granule Method

Calcium Hypochlorite Granules shall be placed in the main during construction at the following stations to include the upstream end of first section of pipe, upstream end of each branch and at 500' intervals. Quantity to be in accordance with the following table:

Pipe Diameter (d) (inches)	Calcium Hypochlorite Granules (ounces)
4	1.7
6	3.8
8	6.7
12	15.1
Over 12"	* D X D X 15.1

Residual Chlorine Concentration Mg/L	Sulfur Dioxide (SO ₂) lb	Sodium Bisulfite (NaHSO ₃) lb	Sodium Sulfite (Na ₂ SO ₃) lb	Sodium Thiosulfate (Na ₂ S ₂ O ₃ -5H ₂ O) lb	Ascorbic Acid (C ₆ O ₈ H ₆) lb
1	0.8	1.2	1.4	1.2	2.1
2	1.7	2.5	2.9	2.4	4.2
10	8.3	12.5	14.6	12.0	20.9
50	41.7	62.6	73.0	60.0	104.0

Chlorine Concentration prior to Dechlor _____ mg/L

Pipe Capacity _____ gallons

Type of Chemical _____

Brand/Manufacturer _____ (submit MSDS)

Chemical quantity required _____ lb

If multiple discharge locations are being used, please provide a sequence of dechlorination that describes when valves and end of line locations will be opened and closed so that all pipe sections received the required amount of chlorine.

Sequence (if applicable)

Section 8.B. Discharge/Disposal

Optional discharge methods are indicated below in order of preference:

- Beneficial reuse – Discharge to a water truck and used for beneficial use such as irrigation, watering for dust control, or other acceptable beneficial construction use. **MAY NOT** be used as potable water for consumption.
- Storm Sewer/Retention Pond – May be transported by hose to storm sewer inlet which discharges to a retention pond. An air gap shall be maintained between the discharge end of the hose and the inlet.
- Wastewater Manhole – May be transported by hose to wastewater manhole subject to approval of Austin Water Utility. An air gap must be maintained between the discharge end of the hose and the manhole.