

## TITLE 18

### WATER AND SEWERS<sup>1</sup>

#### CHAPTER

1. WATER AND SEWERS.
2. USER CHARGE SYSTEM.
3. GENERAL WASTEWATER REGULATIONS.
4. PRIVATE SEWAGE DISPOSAL REGULATIONS.
5. CROSS-CONNECTIONS, AUXILIARY INTAKES, ETC.

#### CHAPTER 1

### WATER AND SEWERS

#### SECTION

- 18-101. City council, board of mayor and alderman to supervise and control.
- 18-102. Fluoridation of water supply authorized.
- 18-103. Limitations on accounts to be disbursed by the water board/city water works.
- 18-104. Water and sewer connection charges, water meter deposits, and water and sewer rates.
- 18-105. Mutual aid agreements with other local governments.

**18-101. City council, board of mayor and aldermen to supervise and control.** Until such time a new board of water works and sewerage commissioners may be appointed, the city council, board of mayor and aldermen (noted hereafter as the city council) shall have supervision, administration, operation, and control of the City of Decherd water works, sewerage systems, and any other responsibilities so designated for these utilities, by the authority as noted in *Tennessee Code Annotated*, §§ 7-35-401 to 7-35-431. The members of the city council shall serve as such without additional compensation. The water works billing clerk and bookkeeper shall be bonded in the sum of ten thousand dollars (\$10,000.00). The city recorder, or such other employee appointed by the mayor, shall be the secretary at all meetings conducted when the city council sets as the water board.

The water board shall meet at 8:00 P.M. the second Monday of each month, or immediately after the city council meeting. (1993 Code, § 18-101)

---

<sup>1</sup>Municipal code references

Building, utility, and residential codes: title 12.

Cross-connections: title 18, chapter 5.

Refuse disposal: title 17.

**18-102. Fluoridation of water supply authorized.** The Water Department of the City of Decherd, Tennessee, is hereby authorized and instructed to make plans for the fluoridation of the water supply to the city; to submit such plans to the Department of Health and Environment of the State of Tennessee for approval; and, upon approval, to add such chemicals as fluoride to the water supply in accord with such approval as will adequately provide for the fluoridation of said water supply.

The cost of such fluoridation will be borne by the revenues of the water department of the city. (1993 Code, § 18-102)

**18-103. Limitations on accounts to be disbursed by the water board/city water works.** The City of Decherd Water Board and city water superintendent shall disburse such funds as necessary, with the direct assistance of the bookkeeper, to maintain their financial requirements and demands, to include payrolls, within the following limitations:

(1) Will pay present bills, contracts, and other obligations presently established and approved by ordinance or resolution, or by the city council as recorded in the city council minute book;

(2) Will not incur any financial obligations to the city or the water works without prior approval by the city council, other than maintain present services except:

(a) Will not enter into any contracts or obligation exceeding five thousand dollars (\$5,000.00) without prior approval of the city council;

(b) The hiring or dismissal of any permanent or full-time employee will be approved by the water board; and

(c) Will not make any water or sewer bill adjustments without a thorough investigation on the matter(s) and the water board approves the adjustment that is proposed or requested before the adjustment is made.

(3) Will provide the city council copies of minutes of meetings and monthly financial status reports; and

(4) The city council shall, by ordinance, establish and maintain just and equitable rates and charges for the use of the services rendered by the water and sewerage works systems. (1993 Code, § 18-103)

**18-104. Water and sewer connection charges, water meter deposits, and water and sewer rates.**<sup>1</sup> Water and sewer connection charges, water meter deposits, and water and sewer rates shall be established by the board of mayor and aldermen from time to time by ordinance. (1993 Code, § 18-104, modified)

---

<sup>1</sup>Water and sewer connection charges, deposits and rates (and amendments) are available in the office of the recorder.

**18-105. Mutual aid agreements with other local governments.<sup>1</sup>**

The City of Decherd Water and Sewer Department may respond in emergency situations at the request of other local governments. The water and sewer department is not obligated to respond.

(1) The water and sewer department will respond to calls for assistance only upon the request for such assistance made by the department head in charge of the agency requesting the assistance.

(2) The authority to respond to such a request will be made by the water and sewer department commissioner, superintendent, or his assistant.

(3) The water and sewer department may provide whatever equipment and personnel as deemed appropriate up to a maximum of fifty percent (50%) of its personnel and resources.

(4) The water and sewer department's response will be determined by the severity of the emergency in the requesting department's jurisdiction as determined by the water and sewer department commissioners, superintendent, or assistant and the department head requesting the assistance.

(5) The Decherd Water and Sewer Department may return to its own jurisdiction at the discretion of the water and sewer superintendent or his designated assistant in charge of the water and sewer department.

(6) Compensation for this mutual aid agreement will be made in an in-kind manner. (1993 Code, § 18-107)

---

<sup>1</sup>Municipal code reference  
Mutual aid agreements: title 20.

## CHAPTER 2

### USER CHARGE SYSTEM

#### SECTION

- 18-201. Introduction.
- 18-202. User charge system.
- 18-203. User charges.
- 18-204. Surcharges.
- 18-205. Policy for developers, Decherd water and sewer system.
- 18-206. Water/sewer contract.
- 18-207. Industrial users fee.

**18-201. Introduction.** The City of Decherd, Tennessee has completed the design of wastewater treatment facilities and pump stations and of improvements to collection system under a Step 2 grant from the U.S. Environmental Protection Agency.

This report presents the User Charge (UC) system for the distribution of the cost of operation and maintenance of these facilities and for the distribution of debt service costs to all users of the wastewater collection, transportation, treatment, and disposal facilities operated by the City of Decherd. The user charge system developed herein is based on EPA guidelines as outlined in Appendix B of the *Federal Register*, Vol. 43, No. 188 dated September 27, 1978.

The federal guidelines recommend that the user charge system be reviewed annually and revised periodically to take into account the actual costs of operation and maintenance of the treatment works and the collection facilities. (1993 Code, § 18-201)

**18-202. User charge system.** To allocate operation, maintenance, and other costs of the wastewater facilities to the users, it is first necessary to prepare a proposed budget to establish the total revenue requirement for the operation and maintenance and for debt service for the facilities. This is presented in Table 1, Debt Service and O&M Costs. Table 2 shows the water usage for evaluating costs per unit of volume used by the customer.

The O&M costs shown in Table 1 are further divided into fixed and variable expenditures as shown in Table 3. Fixed costs are those that will be incurred regardless of the quantity and quality of the waste treated. The variable costs are those that will be dependent on the actual quantity and quality of the waste treated.

The user charge system has been developed on the basis of two (2) categories of charges:

- (1) Cost of treating waste of a quality normally expected for a domestic user; and

(2) Cost of treating wastewater of a strength higher than the base strength established for the first category.

The base line waste strength for assessing charges under these two (2) categories shall be determined by two (2) parameters, five (5) day biochemical oxygen demand and suspended solids. Wastes with BOD<sub>5</sub> and suspended solids values up to two hundred thirty-nine (239) mg/l and one hundred fifty-one (151) mg/l respectively, shall be considered to be falling under the first category. The users discharging wastes with strengths higher than these base line values shall be assessed a surcharge. This surcharge will be based on the O&M cost allocated to each of these parameters. The cost breakdown on the basis of BOD, suspended solids, and flow is presented in Table 4. (1993 Code, § 18-202)

**18-203. User charges.** The user charge shall be developed on a volume basis using Model No. 1 of the federal guidelines referred to above:

$$C_U = \frac{C_T}{V_T}$$

where:  $C_u$  = User's charge for operation and maintenance per unit of volume.  
 $C_T$  = Total annual operation and maintenance and debt service costs for wastewater treatment and transmission facilities.  
 $V_T$  = Total annual volume contribution from all users.

Referring to Table 1, total annual cost  $C_T$  is one hundred seventy one thousand six hundred seventy two dollars (\$171,672.00) and the total annual volume  $V_T$  from Table 2 is fifty three million five hundred eight thousand (53,508,000) gallons.

$$\begin{aligned} \text{Therefore, user charge } C_u &= \frac{171,672}{53,508,000} \\ &= \$3.21 \text{ per 1,000 gallons} \end{aligned}$$

Table 2 also indicates average residential usage of five thousand two hundred (5,200) gallons per month which would result in an average sewer user charge of sixteen dollars and sixty-nine cents (\$16.69) per month per residential customer. (1993 Code, § 18-203)

**18-204. Surcharges.** As mentioned earlier, for an equitable distribution of operation, maintenance, and other costs of the treatment and collection facilities, a surcharge will be developed for users discharging wastes of strengths

higher than the base line strength. This surcharge will be in proportion to the strength of waste discharged by the user. The surcharge will be based on allocation of O&M costs to BOD and suspended solids as shown in Table 4.

Annual cost of treatment

Allocated to BOD            \$14,700.00

Annual BOD<sub>5</sub> loading = 349,670 lbs.

Therefore, treatment cost for BOD = \$0.04204 per lb. of BOD

Annual cost of treatment

Allocated to SS = \$5,600.00

Annual SS loading = 218,270 lbs.

Therefore, treatment cost for SS = \$0.02565 per lb. of SS

Based on the above unit treatment costs for BOD and suspended solids, the surcharge can be computed using Model No. 2 of the federal guidelines:

$$C_s = B_c (B) + S_c (S)$$

where  $C_s$  = Surcharge for wastewater of excessive strength

$B_c$  = O&M cost for treatment of a lb. of BOD

$B$  = BOD loading from a user above the base level of 239 mg/l, in lbs. BOD

$S_c$  = O&M cost for treatment of a lb. of SS

$S$  = SS loading from a user above the base level of 151 mg/l, in lbs. SS

The application of surcharge can best be explained by an example. Assuming that a user discharges waste of the following characteristics in a given month.

Discharge	15,000 gallons
BOD <sub>5</sub>	600 mg/l
SS	400 mg/l

$$\begin{aligned}
 \text{then B} &= 600-239 = 361 \text{ mg/l} \times 8.34 \times 0.015 \\
 &= 45.16 \text{ lbs. BOD} \\
 \text{and S} &= 400-151 = 249 \text{ mg/l} \times 8.34 \times 0.015 \\
 &= 31.15 \text{ lbs. SS}
 \end{aligned}$$

From above computation:

$$B_c = \$0.04204 \text{ per lb. of BOD}$$

$$S_c = \$0.02565 \text{ per lb. of SS}$$

$$\begin{aligned}
 \text{Therefore, surcharge, } C_s &= (0.04204 \times 45.16) \\
 &+ (0.02565 \times 31.15) \\
 &= 1.90 + 0.80 \\
 &= \$2.70
 \end{aligned}$$

This surcharge should be added to the base charge computed as follows:

$$\begin{aligned}
 \text{Base charge, } C_u &= 3.21 \times \frac{15,000}{1,000} \\
 &= \$48.15
 \end{aligned}$$

$$\begin{aligned}
 \text{Therefore, total charge to the user for the month under consideration} \\
 &= 48.15 + 2.70 \\
 &= \$50.85
 \end{aligned}$$

**TABLE 1****DEBT SERVICE AND O&M COSTS**

DEBT SERVICE	ANNUAL
Existing sewer debt service	\$26,700
Future debt service	57,293
Total debt service	83,993
Reserve requirement	8,399
<b>O&amp;M COSTS</b>	
Labor	\$32,400
Plant	22,600
Pump stations and sewer maintenance	11,300
Plant maintenance	2,800
Laboratory and testing	1,400
Chemicals, supplies, and miscellaneous	8,780
<b>TOTAL O&amp;M</b>	<b>\$79,280</b>
<b>TOTAL ANNUAL COST</b>	
Debt service	83,993
Reserve	8,399
O&M	79,280
<b>TOTAL ANNUAL COST</b>	<b>\$171,672</b>



**TABLE 2**  
**WATER USAGE**

	TOTAL	RESIDENTIAL	COMMERCIAL, INSTITUTIONAL, AND OTHERS
No. of water customers	1030	968	62
Avg. water sold per month, mg.	5.8000	5.0336 (86.79%)	0.7664 (13.21%)
No. of water and sewer customers	772	710	62
Avg. water sold per month to water and sewer customers, mg.	4.4584	3.6920 (82.81%)	0.7664 (17.19%)

NOTE: Figures in parenthesis is water usage as percentage of total.

Annual volume of water sold to  
water and sewer customers:                    12 x 2.4584  
=                    53,508,000 gallons/year

Average residential usage:                    3,692,000/710  
=                    5,200 gallons/month

**TABLE 3**  
**BREAKDOWN OF BUDGETED COSTS INTO FIXED**  
**AND VARIABLE EXPENDITURES**

CATEGORY	ANNUAL EXPENDITURE, DOLLARS		
	FIXED	VARIABLE	TOTAL
Labor	32,400	0	32,400
Power	1,200	21,400	22,600
Pump stations and sewer maintenance	3,000	8,300	11,3000
Plant maintenance	1,800	1,000	2,800
Laboratory and testing	800	600	1,400
Chemicals, supplies, and miscellaneous	<u>6,000</u>	<u>2,780</u>	<u>8,780</u>
 Total O&M	 45,200	 34,080	 79,280
Debt service	83,993	0	83,993
Debt service reserve	<u>8,399</u>	<u>0</u>	<u>8,399</u>
Total annual cost	\$137,592	\$34,080	\$171,672

**TABLE 4**

**ALLOCATION OF VARIABLE O&M EXPENDITURE**

**TO THE PARAMETERS OF**

**FLOW, BOD, AND SUSPENDED SOLIDS**

ANNUAL VARIABLE EXPENDITURE ALLOCATION TO

CATEGORY		FLOW	BOD	SS
Power	21,400	2,400	14,000	5,000
Plant maintenance	1,000	500	250	250
Laboratory and testing	600	100	300	200
Chemical supplies and miscellaneous	<u>2,780</u>	<u>2,480</u>	<u>150</u>	<u>150</u>
Total, \$ (1972 Code, § 13-1A04)	25,780	5,480	14,700	5,600

**18-205. Policy for developers, Decherd water and sewer system.**

(1) Developer will submit a complete set of plans for review to the Decherd Utility System (DUS) showing all water and/or sewer lines to be installed (including services as required) prior to any construction of said utilities. These plans must be submitted on a time schedule allowing ample time for review by the DUS's engineer.

(2) The DUS's engineer will develop a reasonable cost estimate for the water and/or sewer system to serve the development, including any off-site improvements<sup>1</sup> that may be required to properly serve this development.

---

<sup>1</sup>Off-site improvements include any work that has to be done to the existing water distribution or sewer collection system (line replacement, upsizing of lines, etc.). If there presently is no existing line between the DUS and the proposed development, there will be no off-site improvements, except when the DUS requires the developer to install larger lines than are required by their development. In instances such as this, the DUS would either pay for the increase in utility size or credit the developer for the "upsizing" cost.

(3) The developer will place ten percent (10%) of the cost estimate<sup>1</sup> with the DUS prior to plans being submitted to the Tennessee Department of Environment and Conservation for approval. The developer shall also place with DUS its surety bond or letter of credit for one hundred percent (100%) of the estimated construction cost, to be released upon successful completion of the utilities (water/sewer).

(4) The developer will install all water/sewer lines as per Tennessee State Department of Environment and Conservation approved plans, and the DUS's standard specifications. DUS standard specs are available at a cost of twenty-five dollars (\$25.00) per copy (water or sewer) at the office of DUS.

(5) The developer will pay to the DUS a privilege fee equal to one-half (1/2) of the amount of the current water and sewer tap fee at the time of development for each lot or unit if multi-unit housing in the proposed development, if the existing water or sewer system is not to be upgraded. This amount is to be paid prior to any service being turned on to the development.

(6) Developers will receive credit for off-site improvements by deducting privilege fees for lots, up to the full amount of the off-site improvements. This privilege fee credit per lot will be for the full amount of the current water/sewer tap fee.

If the costs of the off-site improvements exceed the amount of privilege fees, then the developer will have a credit with the DUS for privilege fees with future new development, but not for future off-site improvement costs. The ceiling amount assessed to the developer for sewer and/or water off-site improvements will be established by the board.

(7) All lines installed either on-site or off-site of development will be inspected and approved only by the DUS's personnel or the DUS's designated representative, at the developer's expense. (These inspection fees will be paid from the ten percent (10%) mentioned in subsection (3).) No water or sewer service will be turned on by anyone except the DUS's personnel.

(8) A set of as-built plans showing all mains and services must be submitted within sixty (60) days from completion of the utilities for approval by the DUS. If as-builts are not received within the sixty (60) day limit, service will be discontinued.

(9) No water service will be turned on at any tap until a meter deposit is paid to the DUS and a meter installed by the DUS personnel.

(10) The developer is responsible for obtaining all easements (fifteen foot (15') min.) for line installation. These easements are to be deeded to the DUS prior to any line construction.

---

<sup>1</sup>This ten percent (10%) is to pay for engineering review, legal fees, and inspection. If ten percent (10%) is not enough to cover all costs incurred by the DUS, the remainder shall be paid by the developer before water or sewer service is turned on.

(11) The developer will be responsible for a warranty period of one (1) year on any lines installed by him in the development or off-site improvements. If repairs are made to said lines by the DUS within the warranty time, the total cost of these repairs will be charged to the developer, and will not come from the ten percent (10%) mentioned in subsection (3). Failure to pay for such repairs on a timely basis will constitute discontinuance of service to the development.

(12) Any inspections required of the DUS by the developer on lines being installed will require at least two (2) hours notice during regular working hours on scheduled work days.

(13) No construction of any lines by the developer will begin until the attached contract is duly executed and all provisions in the developers policy have been satisfied to the DUS, including a copy of the plans reflecting Tennessee Department of Environment and Conservation approval. (1993 Code, § 18-205)

**18-206. Water/sewer contract.**

**WATER/SEWER CONTRACT**

THIS AGREEMENT made on the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, by and between the Decherd City Water Works, hereinafter referred to as "DUS" (Decherd Utility System) and \_\_\_\_\_ hereinafter referred to as "Developer".

**W I T N E S S E T H :**

WHEREAS, the DUS owns and operates a water/sewer system and said system will service the area or subdivision/development hereinafter designated or named; and

WHEREAS, the DUS revenues are pledged to secure its bonded indebtedness, so that expansions normally may be made only at the expense of new subdivisions/developments; and

WHEREAS, developer has made application for water/sewer services;

NOW, THEREFORE, in consideration of the premises and the mutual promises of the parties herein contained, and other good and valuable considerations, the receipt of all of which is hereby acknowledged, the parties hereto have entered into the following agreement:

The DUS hereby agrees to and will permit the developer to connect onto the DUS water/sewer main or mains, to install the water/sewer services, mains, valves, fittings, etc., for water/sewer services to \_\_\_\_\_ . The

developer is to install all mains, valves, fittings, pipes, etc., dealing with the water/sewer services strictly in accordance with the drawings, plans, and specifications as drawn or approved by the Engineers for the DUS, which specifications are attached to the Agreement and made a part hereof as though copied herein.

The developer covenants and agrees to hold the DUS harmless from the claim of any person, firm, or corporation and to defend any action at law or equity brought and protect the DUS against any judgments rendered, growing out of the installation herein provided for whether the same be on private or public property and to follow all health, safety, workers' compensation, and all other applicable state or governmental agency statutes or regulations.

The developer will pay for all material and labor necessary to the installation and completion of the project in accordance with all drawings, plans, specifications and this Agreement, and at the conclusion of the installations, the DUS shall become and be the sole owner of said mains, free and clear of the claims of any person or persons whomsoever, and without the necessity of any further writing, contract or deed, it being the intention of the parties that this Contract shall operate as a conveyance of said mains when the same are installed. Any and all easements must be conveyed to DUS by deed.

In addition to the costs of the installation herein provided for, the developer hereby agrees to and will pay to the DUS upon execution of this contract ten percent (10%) of the cost of the installation of all water and sewer improvements, including services, which are to be installed in accordance with the Rules and Regulations of the DUS. Said ten percent (10%) of the price is to cover overhead, supervision, engineering inspection, legal, etc., services furnished by the DUS.

The DUS will inspect the water/sewer facilities, mains, valves, fittings, etc., to assure the DUS that the same are being installed in accordance with the plans and specifications, and state and local health departments' regulations.

It is understood that no third party shall obtain any benefits or rights under this Agreement in respect to water tapping privileges and no connection shall be made to any residence of other customer site until all necessary arrangements have been made in accordance with the policies of the DUS.

In addition to the payment of ten percent (10%) of the contract price to be paid upon execution of this contract as hereinbefore provided, the developer, at the time the subdivision/development is connected to the main distribution/collection system, will pay all water/sewer tapping privilege fees, water storage fees; and deposit fees, all as required by the DUS Standard Policy

for Developers, and will give its surety bond or letter of credit for one hundred percent (100%) of the construction costs as estimated by the DUS Engineer, in accordance with the requirements of such standard policy for developers. A copy of such standard policy for developers is attached to and made a part of this contract and in the event of any discrepancies between the terms of the contract and the standard policy for developers, the latter shall control.

The developer hereby agrees to pay the DUS all costs and expenses, including attorney's fees incurred in enforcing this Agreement upon the developer's breach of the Agreement.

The developer hereby warrants that no liens or encumbrances shall remain for the installation of said mains, valves, etc., and the developer hereby agrees that said mains, etc., shall be the sole property of the DUS.

The developer, in signing this Agreement, hereby warrants that the water/sewer mains, valves, fittings, etc., when installed will be in accordance with the foregoing provision, and the plans and specifications above referred to, and hereby bargains, sells, transfers and conveys the same to the DUS free and clear of all encumbrances of whatever nature or description.

IN WITNESS WHEREOF, the parties have entered into this Agreement as of the day and date first above written.

DECHERD CITY WATER WORKS

By: \_\_\_\_\_

DEVELOPER

By: \_\_\_\_\_

(1993 Code, § 18-206)

**18-207. Industrial users fee.** Compatible pollutants as listed below shall be regulated as mass based limits. These parameters include BOD<sub>5</sub>, Oil and Grease (O&G), and Total Suspended Solids (TSS).

The City of Decherd may assess an "Industrial Users Fee" (IUF) to be charged to sewer users with approved permits on the monthly water/sewer bill. The IUF will be assessed for months during which any of the compatible pollutants have been detected at levels greater than those listed below:

IUF threshold limits

BOD = 238 mg/l

O&amp;G = 50 mg/l

TSS = 300 mg/l

The IUF will be computed based on the following rates:

BOD = \$0.30/lb

O&amp;G = \$0.14/lb

TSS = \$0.14/lb

The IUF will be computed as follows:

The IUF will be assessed based on a monthly average of all measurements taken during a calendar month. Samples are to be analyzed by the user at the frequency stated in the user permit. The results for the preceding month are to be received at city hall by the fifteenth (15<sup>th</sup>) day of each month. The average of all results (including samples taken by the city, if any) for each parameter will be used to determine the IUF. The IUF threshold limit will be subtracted from the monthly average; the remainder is considered in the calculation of the IUF. This remainder amount (mg/l) will be converted to pounds (lbs) per month utilizing actual discharge meter records or as determined by the superintendent. An IUF dollar amount will be assessed based on the current rates and totaled for each parameter above the threshold limit. The IUF will be assessed monthly or as determined by the superintendent, but in no case shall extend beyond a six (6) month period. (1993 Code, § 18-207)



**CHAPTER 3**

**GENERAL WASTEWATER REGULATIONS**<sup>1</sup>

**SECTION**

18-301. Adopted by reference.

**18-301. Adopted by reference.** The general wastewater regulations, copies of which are on file in the office of the city recorder, are adopted and incorporated as part of this code of ordinances as fully as if set out at length herein. (Ord. #378, Jan. 2014)

---

<sup>1</sup>This ordinance (and amendments) are of record in the office of the recorder.

**CHAPTER 4****PRIVATE SEWAGE DISPOSAL REGULATIONS<sup>1</sup>****SECTION**

- 18-401. Definitions.
- 18-402. Use of public sewers required.
- 18-403. Private sewage disposal.
- 18-404. Prohibited sewage disposal.
- 18-405. Sanitary sewage disposal required.
- 18-406. Violations and penalty.

**18-401. Definitions.** For the purpose of this chapter:

(1) "Private sewage disposal system" means any privately owned system in which sewage is collected and disposed of on site and in accordance with rules and regulations of the Tennessee Department of Environment and Conservation. A private sewage disposal system is not a public sewer system.

(2) "Public sewer system" means the conduits, sewers, and all devices and appurtenances by means of which sewage is collected, pumped, treated or disposed of finally. Public sewer system does not include systems for private residences or dwellings.

(3) "Sewer" or "sewage" shall mean all human excrement, water-carried human and household wastes from residences, buildings, institutions or industrial establishments, together with such ground, surface, or storm water as may be present.

**18-402. Use of public sewers required.** It shall be unlawful for any person to place, deposit, or permit to be deposited in any unsanitary manner on public or private property within the City of Decherd, or in any area under the jurisdiction of the city, any human or animal excrement, sewage, garbage, or other objectionable waste.

**18-403. Private sewage disposal.** When a public sewer system is not available, the building sewer shall be connected to a private sewage disposal system complying with the provisions and requirements of the Tennessee Department of Environment and Conservation.

---

<sup>1</sup>Municipal code reference

Building, utility, and residential codes: title 12.

Cross-connections: title 18.

**18-404. Prohibited sewage disposal.** It shall be unlawful, except as provided herein, to construct or maintain any privy, privy vault, septic tank, cesspool, or other facility intended or used for the disposal of sewage.

**18-405. Sanitary sewage disposal required.** The owner of any public or private property shall operate and maintain private sewage disposal facilities in a sanitary manner, at all time, at no expense to the City of Decherd.

**18-406. Violations and penalty.** The penalty for violation of this chapter shall be fifty dollars (\$50.00) per incident, with each day that the violation is allowed to continue constituting a separate incident.

## CHAPTER 5

### CROSS-CONNECTIONS, AUXILIARY INTAKES, ETC.<sup>1</sup>

#### SECTION

- 18-501. Definitions.
- 18-502. Compliance with *Tennessee Code Annotated*.
- 18-503. Regulated.
- 18-504. Statement required.
- 18-505. Applicability.
- 18-506. Inspections/surveys.
- 18-507. Backflow prevention determination.
- 18-508. Use of protective devices.
- 18-509. Backflow prevention assembly installation requirements.
- 18-510. Existing backflow prevention assemblies.
- 18-511. Assembly performance evaluations and testing.
- 18-512. Corrections of violations.
- 18-513. Non-potable supplies.
- 18-514. Responsibility for water system.
- 18-515. Thermal expansion control.
- 18-516. Relief valves.
- 18-517. Safety standards; duplicate equipment in parallel required.
- 18-518. Violations and penalty.

**18-501. Definitions.** For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

(1) "Air gap." A physical separation between the free flowing discharge end of a potable water supply line and an open or non-pressurized receiving vessel.

(2) "Approved." Any condition, method, device, or procedure accepted by the Tennessee Department of Environment and Conservation, Division of Water Supply, and water provider.

(3) "Approved air gap." An air gap separation with a minimum distance of at least twice the diameter of the supply line when measured vertically above the overflow rim of the vessel, but in no case less than one inch (1").

---

<sup>1</sup>Municipal code references

Plumbing code: title 12.

Wastewater treatment: title 18.

Water and sewer system administration: title 18.

(4) "Auxiliary intake." Any piping connection or other device whereby water may be secured from any sources other than from the public water system.

(5) "Auxiliary water supply." Any water supply on or available to the premises other than water supplied by the public water system.

(6) "Backflow." The reversal of the intended direction of flow of water or mixtures of water and other liquids, gases, or other substances into the distribution pipes of a potable water system from any source.

(7) "Backflow prevention assembly." An approved assembly designed to prevent backflow.

(8) "Backpressure." A pressure in the downstream piping that is higher than the supply pressure.

(9) "Backsiphonage." Negative or sub-atmospheric pressure in the supply piping.

(10) "By-pass." Any system of piping or other arrangement whereby water may be diverted around a backflow prevention assembly, meter, or any other public water system controlled device.

(11) "Contaminant." Any substance introduced into the public water system that will cause illness or death.

(12) "Contamination." The introduction or admission of any foreign substances that causes illness or death.

(13) "Cross-connection." Any physical arrangement whereby public water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device which contains, or may contain, contaminated water, sewage, or other waste or liquid of unknown or unsafe quality which may be capable of contaminating the public water supply as result of backflow caused by the manipulation of valves, because of ineffective check valves or backpressure valves or because of any other arrangement.

(14) "Cross-connection control coordinator/manager." The person who is vested with the authority and responsibility for the implementation of the cross-connection control program and for the provision of this chapter/policy.

(15) "Customer." Any natural or artificial person, business, industry, or governmental entity that obtains water, by purchase or without charge, from the water provider.

(16) "Double check detector assembly." A specially designed assembly composed of line size approved double check valve assembly, with a by-pass containing a water meter and approved double check valve assembly specifically designed for such application. The meter shall register accurately for very low rates of flow up to three (3) gallons per minute and shall show a registration for all rates of flow. This assembly shall only be used to protect against non-health hazards and is designed primarily for use on fire sprinkler systems.

(17) "Double check valve assembly." An assembly of two (2) internally loaded check valves, either spring loaded or internally weighted, installed as a

unit between tightly closing resilient seated shutoff valves and fitted with properly located resilient seated test cocks. This type of device shall only be used to protect against non-health hazard pollutants.

(18) "Failed." The status of a backflow prevention assembly determined by a performance evaluation based on the failure to meet all minimums set forth by the approved testing procedure.

(19) "Fire system classifications protection." The classes of fire protection systems, as designated by the American Waterworks Association "M14" for cross-connection control purposes based on water supply source and the arrangement of supplies, are as follows:

(a) "Class 1." Direct connection to the public water main only; non pumps, tanks, or reservoirs; no physical connection from other water supplies; no antifreeze or other additives of any kind; all sprinkler drains discharging to the atmosphere, dry well, or other safe outlets.

(b) "Class 2." Same as Class 1, except booster pumps may be installed in connection from the street mains.

(c) "Class 3." Direct connection to public water supply mains in addition to any one or more of the following: elevated storage tanks; fire pumps taking suction from above ground covered reservoirs or tanks; and pressure tanks.

(d) "Class 4." Directly supplied from public water supply mains, similar to Class 1 and Class 2, with an auxiliary water supply dedicated to fire department use and available to premises, such as an auxiliary supply located within one thousand seven hundred feet (1,700') of the pumper connection.

(e) "Class 5." Directly supplied from public water supply mains and inter-connection with auxiliary supplies such as pumps taking suction from reservoirs exposed to contamination, or from rivers, ponds, wells, or industrial water systems; where antifreeze or other additives are used.

(f) "Class 6." Combined industrial and fire protection systems supplied from the public water mains only, with or without gravity storage or pump suction tanks.

(20) "Hazard, degree of." A term derived from evaluation of the potential risk to public health and the adverse effect of the hazard upon the public water system.

(21) "Hazard, health." A cross-connection or potential cross-connection involving any substance that could, if introduced in the public water supply, caused death, illness, and spread disease.

(22) "Hazard, non-health." A cross-connection or potential cross-connection involving any substance that would not be a health hazard but would constitute a nuisance or be aesthetically objectionable if introduced into the public water supply.

(23) "Hazard, plumbing." A cross-connection in a customer's potable water system plumbing that is not properly protected by an approved air gap or backflow prevention assembly.

(24) "Industrial fluid." Any fluid or solution that may be chemically, biologically, or otherwise contaminated or polluted in a form or concentration that could constitute a health, system, pollution, or plumbing hazard if introduced into the public water supply. This shall include, but is not limited to: polluted or contaminated water; all type of process water or used water originating from the public water system and that may have deteriorated in sanitary quality; chemicals; plating acids and alkalis; circulating cooling water connected to an open cooling tower; cooling towers that are chemically or biologically treated or stabilized with toxic substance; contaminated natural water systems; oil, gases, glycerin, paraffin, caustic, and acid solutions, and other liquids or gases used in industrial processes, or for fire purposes.

(25) "Inspection." An on-site evaluation of an establishment to determine if backflow prevention assemblies are needed by the customer to protect the public water system from actual or potential cross-connections.

(26) "Inter-connection." Any system of piping or other arrangement whereby a public water supply is connected directly with a sewer, drain, conduit, or other device, which does, or may carry sewage or not.

(27) "Passed." The status of a backflow prevention assembly determined by a performance evaluation in which the assembly meets all minimums set forth by the approved testing procedure.

(28) "Performance evaluation." An evaluation of an approved double check valve assembly or reduced pressure principle assembly (including approved detector assemblies) using the latest approved testing procedures in determining the status of the assembly.

(29) "Pollutant." A substance in the public water system that would constitute a non-health hazard and would be aesthetically objectionable if introduced into the public water supply.

(30) "Pollution." The presence of a pollutant or substance in the public water system that degrades its quality so as to constitute a non-health hazard.

(31) "Potable water." Water that is safe for human consumption as prescribed by Tennessee Department of Environment and Conservation, Division of Water Supply.

(32) "Pressure vacuum breaker assembly." An assembly consisting of one (1) or two (2) independently operating spring loaded check valve(s) and an independently operating spring loaded air inlet valve located on the discharge side of the check valve(s), with tightly closing shutoff valve(s) on each side of the check valves and properly located test cocks for testing valves. This assembly is approved for internal use only and is not approved for premises isolation by the State of Tennessee.

(33) "Public water supply." An entity that furnishes potable water for general use and which is recognized as the public water supply by Tennessee Department of Environment and Conservation, Division of Water Supply.

(34) "Public water system." A water system furnishing water to the public for general use which is recognized as a public water supply by the State of Tennessee.

(35) "Reduced pressure principle assembly." An assembly consisting of two independently acting approved check valves together with hydraulically operating, mechanically independent, pressure differential relief valve located between the check valves and below the first check valve. These units shall be located between two (2) tightly closing resilient seated shutoff valves as an assembly and equipped with properly located resilient seated test cocks.

(36) "Reduced pressure principle detector assembly." A specially designed assembly composed of a line-size approved reduced pressure principle backflow prevention assembly, with a by-pass containing a water meter and approved reduced pressure principle backflow prevention assembly specifically designed for such application. The meter shall register accurately for very low flow rates of flows up to three (3) gallons per minute and shall show registration for all flow rates. This assembly shall be used to protect against non-health and health hazards and used for internal protection.

(37) "Service connection." The point of delivery to the customer's water system; the terminal end of a service connection from the public water system where the water department loses jurisdiction and control over the water. "Service connection" shall include connections to fire hydrants and all other temporary or emergency water service connection's made to the public water system.

(38) "State." The State of Tennessee, Tennessee Department of Environment and Conservation, Division of Water Supply.

(39) "Survey." An evaluation of a premises by a water system performed for the determination of actual or potential cross-connection hazards and the appropriate backflow prevention needed.

(40) "Water system." The water system operated, whether located inside or outside, the corporate limits thereof, shall be considered as made up of two (2) parts, the utility system and the customer system.

(a) The utility system shall consist of the facilities for the production, treatment, storage, and distribution of water, and shall include all those facilities of the water system under the complete control of the water department, up to the point where the customer's system begins (i.e., downstream of the water meter);

(b) The customer system shall include those parts of the facilities beyond the termination of the water department distribution system that are utilized in conveying water to the point of use. (Ord. #350, March 2010)



**18-502. Compliance with Tennessee Code Annotated.** The public water system is to comply with *Tennessee Code Annotated*, § 68-221-711, as well as the *Rules of Public Water Systems*, legally adopted in accordance with this code, which pertain to cross-connections, auxiliary intakes, by-passes, and inter-connections, and establish an effective, ongoing program to control these undesirable water uses. (Ord. #350, March 2010)

**18-503. Regulated.** (1) No person shall cause a cross-connection, auxiliary intake, by-pass, or inter-connection to be made, or allow one to exist for any purpose whatsoever unless the construction and operation of same has been approved by the Tennessee Department of Environment and Conservation and the operation of such cross-connections, auxiliary intake, by-pass, or inter-connection is at all times under the direct supervision of the cross-connection control manager/coordinator of the Decherd Water System.

(2) No water service connection to any premises shall be installed or maintained by Decherd Water System unless the water supply is protected as required by this chapter. Service of water to any premises shall be discontinued by the water system if a backflow prevention assembly required by this policy is not properly installed, tested, and/or maintained; or if it is found that a backflow prevention assembly has been removed, by-passed, or if an unprotected cross-connection exists on the premises. Service shall not be restored until such conditions or defects are correct.

(3) Prior to execution of any work order for a new customer, or for any change in service to an existing customer, notification shall be given to the office of the cross-connection control. Inspectors from the cross-connection control office shall make immediate determination to the customer of the type of backflow prevention assembly needed. Water service shall not be established or maintained until all necessary backflow prevention assemblies are installed.

(4) It shall be unlawful for any person to cause a cross-connection to be made or allow one to exist for any purpose whatsoever unless the construction and operation of same have been approved by the Tennessee Department of Environment and Conservation, and the operation of such cross-connection is at all times under the direction of the manager of the Decherd Water System.

(5) If, in the judgment of the cross-connection manager/coordinator or designee, an approved backflow prevention assembly is required at the water service connection to a customer's premises, or at any point(s) within the premises, to protect the potable water supply, the manager shall compel the installation, testing, and maintenance of the required backflow prevention assembly(s) at the customer's expense.

(6) For new installations, the manager or his designee shall inspect the site and/or review plans in order to assess the degree of hazard and to determine the type of backflow prevention assembly, if any, that will be required, and to

notify the owners of the required assembly and installation criteria. All required assemblies shall be installed and operational prior to initiation of water service.

(7) For all existing premises, personnel from the Decherd Water System shall conduct inspections and evaluations, and shall require correction of violations In accordance with the provisions of this chapter.

(8) For existing installations, the cross-connection manager/coordinator may cause water service to be discontinued until such time as the customer complies with all requirements of state law and this chapter.

(9) For new commercial or industrial construction or renovation of a commercial or industrial property, the cross-connection coordinator/manager or inspector shall inspect the site and review plans in order to determine the type(s) of backflow prevention assembly and notify the owner(s) the type of required assembly(s).

(10) The customer shall install approved assembly(s) at their expense. Failure, refusal, or inability on the part of the customer to install and maintain such an assembly shall be cause for discontinuance of, or refusal of, water service to the premises until such requirements are satisfactorily met.

(11) No installation, alteration, or change(s) shall be made to any backflow prevention assembly connected to the public water system without first securing permission from the cross-connection manager/coordinator.

(12) All backflow prevention assemblies will be inspected after installation for compliance with all requirements of this policy. Failure to meet all installation and testing requirements shall be cause for discontinuance of, or refusal of, water service to the premises until such requirements are satisfactorily met.

(13) It shall be unlawful to install or allow any unprotected takeoffs from the water service line ahead of any meter or backflow prevention assembly located directly after the service connection to a customer's water system. (Ord. #350, March 2010)

**18-504. Statement required.** Any person whose premises are supplied with water from public water system, and who also has on the same premises a separate source of water in an uncovered or unsanitary storage reservoir from which the water stored therein is circulated through a piping system, shall file with the public water system a statement of the nonexistence of unapproved or unauthorized cross-connections, auxiliary intakes, by-passes, or inter-connection. Such statement shall also contain an agreement that no cross-connection, auxiliary intake, by-pass, or inter-connection will be permitted upon the premises. (Ord. #350, March 2010)

**18-505. Applicability.** The requirements contained herein shall apply to all customers of the public water system, and is hereby made a condition required to be met before water service is provided to any customer. This policy/ordinance shall be strictly enforced since it is essential for the protection

of the public water supply against contamination and pollution. (Ord. #350, March 2010)

**18-506. Inspections/surveys.** (1) The cross-connection manager/coordinator shall inspect all properties served by the public water supply where cross-connections with the public water supply are deemed possible. The frequency of inspections and re-inspections based on potential health hazards involved shall be established by the cross-connection manager/coordinator in accordance with guidelines acceptable to the Dechard Water Supply.

(2) The cross-connection manager/coordinator or designee shall have the right to enter at any reasonable time any property served by a connection to the public water system for the purpose of inspecting the piping system therein for cross-connections, auxiliary intakes, by-passes, or inter-connections. On request, the owner, lessee, or occupant or any property so served shall furnish any pertinent information regarding the piping system on the property. The refusal of such information or refusal of access, when requested, shall be deemed as evidence of the presence of connections.

(3) When cross-connections, other structural or sanitary hazards, or any violation of this becomes known, the cross-connection manager/ coordinator or designee may deny or discontinue service to the premises by providing for a physical break in the service line until the customer has corrected the conditions(s) in conformance with this policy. (Ord. #350, March 2010)

**18-507. Backflow prevention determination.** An approved backflow prevention assembly shall be installed on each service line to a customer's premises within one hundred feet (100') of the water meter and in all cases, before the first branch line leading off the service line, if it is impractical or easily altered to provide an effective air gap separation, when any of the following conditions exist:

(1) Premises where industrial fluids, sewage, or any other non-potable substances are handled in such a manner as to create actual or potential health hazard to the water system;

(2) Premises having internal cross-connections that cannot be permanently corrected and controlled, intricate plumbing and piping arrangements, or where entry to all portions of the premises is not readily accessible for inspection purposes making it impractical or impossible to ascertain whether or not cross-connections exist;

(3) Premises having auxiliary water supply, including, but not limited to, a well, cistern, spring, pond, river, or creek that is not, or may not be, of safe bacteriological or chemical quality and that is not acceptable as an additional source by the cross-connection control manager/coordinator or designee;

(4) The plumbing from a private well or other water supply entering the building served by the public water supply, or is connected, directly or indirectly, to the public water supply;

(5) The owner or occupant of the premises cannot or is not willing to demonstrate that the water use and protective features of the plumbing are such that frequent alterations are made to the plumbing;

(6) The nature and mode of operation within the premises is such that frequent alterations are made to the plumbing;

(7) The nature of the premises is such that the use of the structure may change to a use wherein backflow prevention is required;

(8) There is likelihood that protective measures may be subverted, altered, or disconnected;

(9) Any premises having service and fire flow connections, most commercial and educational buildings, construction sites, all industrial and medical facilities, lawn irrigation systems, public or private swimming pools, private fire hydrant connections used by any fire department in combating fires, photographic laboratories, standing ponds or other bodies of water, auxiliary water supplies, and wastewater treatment plants;

(10) Any premises having fountains, water softeners or other point of use treatment systems hot tubs or spas, or other type(s) of water using equipment;

(11) Premises otherwise determined by the cross-connection control manager/coordinator or designee to create an actual or potential hazard to the public water system;

(12) In the case of any premises where there is any material dangerous to health that is handled in such a fashion as may create an actual or potential health hazard to public water system, the public water system shall be protected by an air gap separation (at the discretion of Decherd Water) or a reduced pressure principle backflow prevention assembly. The following premises, where such conditions may exist, include, but are not limited to: sewage treatment plants, sewage pumping stations, chemical manufacturing plants, hospitals, mortuaries, funeral homes, and metal plating operations;

(13) In the case of any premises where, because of security requirements or other prohibitions or restriction it is impossible or impractical to make a complete cross-connection survey, the public water system shall be protected against backflow from the premises by either an air gap separation (at the discretion of the Decherd Water Department) or reduced pressure principle assembly on each service line to the premises;

(14) A backflow prevention assembly shall be installed on each fire service line at the property line or immediately inside the building being served, but in all cases, before the first branch line heading off the service line wherever any of the following conditions exist:

(a) Class 1, 2, and 3 fire protection systems shall require at minimum a double check valve (detector) assembly; provided however, that a reduced pressure principle (detector) shall be required:

(i) Underground fire sprinkler pipelines are parallel to and within ten feet (10') horizontally of pipelines carrying waste water or significantly toxic wastes;

(ii) Premises having unusually complex piping systems;

(iii) The pumpers connecting to the system have corrosion inhibitors or other chemical added to the tanks of the fire trucks;

(iv) The piping system(s) has corrosion inhibitors or other chemical added to prevent freezing; or

(v) An auxiliary water supply exists with one thousand seven hundred feet (1,700') of any likely pumper connection.

(b) Class 4, 5, and 6 fire protection systems shall require an air gap, or a reduced pressure principle assembly (detector) as determined by the cross-connection control manager/coordinator or designee.

(c) Where a fire sprinkler system is installed on the premises, a minimum of a double check valve assembly (detector) shall be required.

(d) Where a fire sprinkler system uses chemicals, such as liquid foam, to enhance fire suppression a reduced pressure principle detector assembly shall be required.

(e) The cross-connection control manager/coordinator may require internal or additional backflow prevention devices where it is deemed necessary to protect potable water supplies within the premises.

(15) In the case of any premises with an auxiliary water supply as set out in § 18-510 and not subject to any of the following rules, the public water system shall be protected by an air gap separation or a reduced pressure principle assembly;

(16) Double check valve assemblies (and detectors) may only be used for Class 1-3 fire protection systems (at the discretion of Decherd Water Department to allow);

(17) In the case of any premises where there are uncontrolled cross-connections, either actual or potential, the public water system shall be protected by a reduced pressure principle assembly (detector) or air gap separation (at the discretion of Decherd Water Department) assembly on each service line to the premises;

(18) In the case of any premises where, because of security requirements or other prohibitions or restriction it is impossible or impractical to make a complete cross-connection survey, the public water system shall be protected against backflow from the premises by either an air gap separation (at the discretion of Decherd Water Department) or reduced pressure principle assembly on each service line to the premises; or

(19) In the case of any premises where toxic substances are present that could pose an undue health hazard, the cross-connection control

manager/coordinator or designee may require an air gap separation or reduced pressure principle assembly at the service connection to protect the public water system. In making this determination, the cross-connection control manager/coordinator or his designee shall consider the degree of hazard. (Ord. #350, March 2010)

**18-508. Use of protective devices.** (1) In commercial and industrial buildings, The City of Decherd, in order to protect the potable water supply requires the installation of a protective device that shall be approved by the City of Decherd cross-connection control coordinator or the City of Decherd codes official as to manufacture, model, and size. The method of installation of backflow protective devices shall be approved by the water superintendent or an authorized representative of the Decherd water supply prior to installation and shall comply with the criteria set forth by the Tennessee Department of Environment and Conservation. The installation and device shall be at the expense of the owner or occupant of the premises. All aspects of the ordinance also applies to commercial and residential buildings.

(2) In residential buildings, Where the nature of use of the water supplied a premises by the water department is such that it is:

(a) Deemed impractical to provide an effective air-gap separation;

(b) That the owner and/or occupant of the premises cannot, or is not willing, to demonstrate to the official in charge of the water supply, or his designated representative, that the water use and protective features of the plumbing are such as to propose no threat to the safety or potability of the water supply;

(c) That the nature and mode of the operation within a premises are such that frequent alterations are made to the plumbing,

(d) There is a likelihood that protective measures may be subverted, altered, or disconnected, the water superintendent or the cross-connection control coordinator or codes official, shall require the use of an approved protective device on the service line serving the premises to assure that any contamination that may originate in the customer's premises is contained therein.

The protective device shall be a reduced pressure zone type backflow preventer approved by the Tennessee Department of Environment and Conservation as to manufacture, model and size. The method of installation of backflow protective devices shall be approved by the water superintendent or authorized representative of the Decherd water supply prior to installation and shall comply with the criteria set forth by the Tennessee Department of Environment. The installation and equipment shall be at the expense of the owner or occupant of the premises.

(3) Personnel of the Decherd public water supply shall have the right to inspect and test the device or devices on an annual basis or whenever deemed

necessary by the water superintendent or his designated representative. Water service shall not be disrupted to test the device without the knowledge of the occupant of the premises.

(4) Where the use of water is critical to the continuance of normal operations or protection of life, property, or equipment, duplicate units shall be provided to avoid the necessity of discontinuing water service to test or repair the protective device or devices. Where it is found that only one (1) unit has been installed and the continuance of service is critical, the water superintendent or designated representative shall notify, in writing, the occupant of the premises of plans to discontinue water service and arrange for a mutually acceptable time to test and/or repair the device. The water supply shall require the occupant of the premises to make all repairs indicated promptly, to keep the unit(s) working properly, and the expense of such repairs shall be borne by the owner or occupant of the premises. Repairs shall be made by qualified personnel acceptable to the water superintendent or authorized representative of the Decherd public water supply.

(5) The failure to maintain backflow prevention device(s) in proper working order shall be grounds for discontinuing water service and possible fines (see § 18-510) to the premises. Likewise, the removal, bypassing, or altering of the protective device(s) or the installation thereof so as to render the device(s) ineffective shall constitute grounds for discontinuance of water service. Water service to such premises shall not be restored until the customer has corrected or eliminated such conditions or defects to the satisfaction of the Decherd public water supply. (Ord. #394, April 2016)

**18-509. Backflow prevention assembly installation requirements.**

Minimum acceptable criteria for installation of backflow prevention assemblies shall include the following:

(1) All backflow prevention assemblies shall be installed at minimum in the approved orientation as indicated by the latest approved list.

(2) Installation of assemblies shall be performed by person granted authority by the water provider. All backflow prevention assemblies installed fire protection systems must be performed by persons possessing a fire sprinkler contractor license. Evidence of current certifications/license must be on file with the cross-connection control manager/coordinator before any installation or testing of the devices can be performed.

(3) All assemblies shall be installed in accordance with the manufacturer installation instructions and by the State of Tennessee installation guide, from the state manual or policies on cross-connection control, unless such instructions are in conflict with this policy, in which case the policy/ordinance shall control, and shall possess all test cocks and fittings required for testing the assembly. All test cocks will be fitted with adapters and all fittings shall permit direct connection to test kits used by the department.

(4) The entire assembly including test cocks and valves shall be easily accessible for testing and repair and shall meet all confined space requirements of OSHA/TOSHA.

(5) Reduced pressure backflow prevention assemblies shall be located so that the relief valve discharge port is a minimum of twelve inches (12"), plus nominal diameter of the supply line, above the floor surface. The maximum height above the floor surface shall not exceed sixty inches (60").

(6) Clearance of devices from wall surfaces or other obstructions shall be a minimum of six inches (6"); or if a person must enter the enclosure for repair or testing, the minimum distance shall be twenty-four inches (24").

(7) Devices shall be protected from freezing, vandalism, mechanical abuse, and from any corrosive, sticky, greasy, abrasive, or other damaging substance.

(8) Devices shall be positioned where discharge from a relief port will not create undesirable conditions. An approved air gap shall separate the relief port from any drainage system. Such air gap shall not be altered without the specific approval of the department.

(9) Devices shall be located in an area free from submergence or flood potential.

(10) All devices shall be adequately supported to prevent sagging.

(11) An approved strainer, fitted with a test cock, shall be installed immediately upstream of all backflow prevention assemblies or shut-off valve, except on fire lines, using only non-corrosive fittings (e.g., brass or bronze) in the device assembly.

(12) Gravity drainage is required on all installations. Below ground installations shall not be permitted for reduced pressure principle assemblies (detectors).

(13) Fire hydrants drains shall not be connected to the sanitary sewer, and fire hydrants shall not be installed in such manner that back siphonage or backflow through the drain may occur.

(14) Where jockey (low volume-high pressure) pumps are utilized to maintain elevated pressure, as in fire protection system, the discharge of the pump shall be on the downstream side of any check valve or backflow prevention assembly. Where the supply for the jockey pump is taken from the upstream supply side of the check valve or backflow prevention assembly, a backflow prevention assembly of the same type(s) required on the main line shall be installed on the supply line.

(15) Fixed position, high volume fire pumps shall be equipped with suction limiting control to modulate the pump if the residual line pressure reaches twenty (20) psi. If line pressure drops below twenty (20) psi, the pump will shut off to protect the distribution system. This shut off system must be tested annually for proper operation and report of the test must be sent to the office of cross-connection control. (Ord. #350, March 2010)



**18-510. Existing backflow prevention assemblies.** (1) All presently installed backflow prevention assemblies which were previously acceptable to the State of Tennessee that complies with installation, testing, and maintenance requirements of this policy and, in the sole discretion of the cross-connection control manager/coordinator or designee, adequately protect the public water system from backflow and that were approved assemblies for the purpose described herein at the time of installation may be retained in service.

(2) Location or space requirements shall not be cause for relocation or replacement of any backflow prevention assembly that is presently installed in a vertical run of pipe shall be replaced, reinstalled, in an approved manner in a horizontal run of pipe.

(3) Wherever an existing assembly is moved from the present location, or when the inspector finds that the conditions of the assembly constitutes a health hazard, the unit shall be replaced by the backflow prevention assembly meeting the requirements of this policy. (Ord. #350, March 2010)

**18-511. Assembly performance evaluations and testing.** (1) All assemblies used to protect the public water system must be tested annually. In those instances where the cross-connection manager/coordinator deems the hazard to be great enough (criteria should be listed), performance evaluation may be required at more frequent intervals.

(2) All assemblies must be deemed passed for each initial and subsequent annual performance evaluations to satisfy as approved backflow prevention assembly.

(3) All assemblies will be tested by backflow prevention assembly tester with a valid (see definition) certificate of competency in testing and evaluation backflow prevention assemblies issued by the State of Tennessee.

(4) All performance evaluation must be performed with a certified test kit.

(5) Certifications for test kits are valid for one year after certification is performed. If the test kit is not recertified after one year, it is deemed expired.

(6) Test kits must be certified annually and the backflow prevention assembly tester must show proof of certification from manufacturer-approved entities. No performance evaluations will be accepted from a backflow prevention assembly tester with an expired test kit certification.

(7) Proof of annual test kit certification and certificate of competency must be kept on file for each tester by water provider.

(8) Backflow prevention assembly testers must test and evaluate according to the latest division of water supply's approved procedures for reduced pressure principle assembly and the double check valve assembly.

(9) If any test does not meet the minimum requirements set forth in the approved testing procedure, the assembly is deemed failed and does not suffice as an approved backflow prevention device. If conditions around the

assembly do not allow the assembly to be tested, the assembly fails the assembly performance evaluation and is marked failed on test report.

(10) Backflow prevention assemblies are deemed passed if all parts of the performance evaluation meet the minimum requirements in the approved testing procedure.

(11) Each location requiring an assembly will have a documented backflow prevention assembly, if the assembly at the address cannot be identified or is not the same, the water provider will be notified and a determination of which assembly is used for protection of the water system.

(12) Test reports must be completely and accurately documented and the appropriate evaluation (passed or failed) determined from testing procedure. Any test report that is not recorded completely in the sections pertinent to the results of the performance evaluation tests will not be accepted by the public water system.

(13) All performance evaluations on file will be recorded on an (state and water system) approved test report.

(14) Assemblies must be tested when installed and after every repair. Backflow prevention assemblies on lawn irrigation systems must be tested when assemblies are placed in service after winterization (to prevent testing just prior to winterization). If lawn irrigation backflow assemblies are removed to winterize the system, upon startup of the system, the assemblies must be retested.

(15) Failure to maintain a backflow prevention assembly that is deemed passed shall be grounds for discontinuance of water service. The removal, bypassing, or altering of a protective device or installation, without the approval of the cross-connection control manager/coordinator or designee, thereof so as to render a device ineffective shall constitute grounds for discontinuance of water service. Water service to such premises shall not be restored until the customer has corrected or eliminated such conditions or defects to the satisfaction this chapter/policy and the cross-connection control manager/coordinator or designee.

(16) The water system shall require the occupant of the premises to keep the backflow prevention assembly working properly and a status of passed. Repairs shall be made by qualified personnel acceptable to the water system within the time limits set forth by this policy. Expense of such repairs shall be borne by the owner or occupant of the premises. The failure to maintain a backflow prevention assembly in proper working order and a status of passed shall be grounds for discontinuance of water service.

(17) The backflow prevention assembly must be tested after every repair and have a status of passed to be in compliance with this policy.

(18) Cross-connection control manager/coordinator or designee shall have the right to inspect and test any assemblies whenever it is deemed necessary. Water service shall not be disrupted to the assembly without the knowledge of the occupant of the premises.

(19) Any backflow prevention assembly tester found by the water system to be negligent in performing testing procedures or falsifying documentation in regards to a backflow prevention assembly will not be allowed continued approval to submit test reports. The water system may allow the backflow prevention assembly tester to perform testing at a later date, at the discretion of the cross-connection control manager/coordinator or designee.

(20) All performance evaluations, tests, and repairs that are at the expense of the customer shall be performed by backflow prevention assembly testers that satisfy all requirements of this chapter.

(21) Original records of evaluations and repairs shall be supplied to the cross-connection control manager/coordinator or designee for retention. (Ord. #350, March 2010)

**18-512. Corrections of violations.** (1) Any customer having cross-connections, auxiliary intakes, by-passes, or inter-connection(s) in violation of this chapter shall, after a thorough investigation of existing conditions and an appraisal of the time required, complete the work within the time designated by the cross-connection control manager/coordinator or designee, but in no case shall the time for correction exceed ninety (90) days.

(2) Failure to comply with any order of the cross-connection control manager/coordinator or designee within the time set out therein shall result in the termination of water service.

(3) Where cross-connections, auxiliary intakes, by-passes, or inter-connections are found to constitute an extreme hazard of immediate concern of contaminating the public water supply the cross-connection control manager/coordinator or designee shall require immediate corrective action be taken to eliminate the threat. Expeditious steps shall be taken to disconnect the public water system from the customer's piping systems unless the extreme hazard is correctly immediately.

(4) Failure to correct conditions threatening the safety of the public water system as prohibited by this chapter or *Tennessee Code Annotated*, § 68-221-711 within the time limits set by the cross-connection control manager/coordinator or designee or this chapter/policy, shall be cause for denial or termination of water service. If proper protection is not provided after times set forth in this policy/chapter, the cross-connection control manager/coordinator or designee shall give the customer written notification that water service is to be discontinued, and thereafter physically separate the public water system from the customer's system in such a manner that the two (2) systems cannot be connected by an unauthorized person.

(5) In the event that a backflow prevention assembly is deemed failed (initial or annual performance evaluation), failure to install backflow prevention assemblies as requested by the water system, or there are deficiencies in the installation from failure to conform to the installation criteria specified in this chapter, or from deterioration, then the cross-connection control

manager/coordinator or designee shall issue a written notice of failure or deficiency (within fourteen (14) days). The time limit is dependent on risk of contamination and may not be greater than ninety (90) days. (Ord. #350, March 2010)

**18-513. Non-potable supplies.** (1) Any water outlet connected to auxiliary water sources, industrial fluid systems, or other piping containing non-potable liquids or gases, which could be used for potable or domestic purposes, shall be labeled in a conspicuous manner as:

#### WATER UNSAFE FOR DRINKING

(2) The minimum acceptable sign shall have black letters at least one inch (1") high on red background.

(3) Color coding of piping in accordance with Occupational Safety and Health Act guidelines may be required in locations where, in the judgment of the inspector, such color coding is necessary to identify and protect the potable water supply. (Ord. #350, March 2010)

**18-514. Responsibility for water system.** (1) Notwithstanding any provisions of a plumbing code adopted by units of local government having jurisdiction, the cross-connection control manager/coordinator or designee shall be responsible for protecting the water system from contamination or pollution due to implementation and enforcement of this policy. Such authority shall extend beyond service connection to whatever extent is necessary to meet the requirements of this policy.

(2) The authority to terminate water service for violation of any provision of this policy shall rest solely with the cross-connection control coordinator/manager, the assistant or designee shall have authority to take action to protect public health and safety.

(3) This section shall not be construed to prevent other officers or employees of the Decherd Water System from terminating water service for failure to pay for water service, or for violation any other provision of Decherd Water System policy. (Ord. #350, March 2010)

**18-515. Thermal expansion control.** A device for the control of thermal expansion shall be installed on the customer's water system where the thermal expansion of the water in the system will cause the water pressure to exceed the pressure setting of the pressure relief valve of the water heater. The thermal expansion device shall control the water pressure to prevent the pressure relief valve of the water heater from discharging. (Perhaps mention closed systems on residential areas about discharging water heaters at minimum). (Ord. #350, March 2010)

**18-516. Relief valves.** All storage water heaters operation above atmospheric pressure shall be provided with an approved, self-closing (levered) pressure relief and temperature valve, or combination thereof, except for nonstorage instantaneous heaters. Such valves shall be installed in the shell of the water heater tank or may be installed in hot water outlet, provided the thermo-bulb extends into the shell of the tank. Temperature relief valves shall be so located in the tank as to be actuated by water in the top eighth (1/8) of the tank served.

For installations with separate storage tank, said valve shall be installed on the tank and there shall not be any type of valve installed between the water heater and the storage tank. There shall not be a check valve or shut off valve between a relief valve and the heater or tank which it serves. The relief valve shall not be used as a means of controlling thermal expansion. (Ord. #350, March 2010)

**18-517. Safety standards; duplicate equipment in parallel required.** Where the use of water is critical to the continuation of normal operations or protection of life, property, or equipment, duplicate units shall be provided to avoid the necessity of discontinuing water service to test or repair a backflow prevention assembly. Until such time as a parallel unit has been installed where the continuance of service is critical, the cross-connection control manager/coordinator or designee shall notify the occupant of the premises of plans to interrupt water service and arrange for a mutually acceptable time to test or repair the assembly. (Ord. #350, March 2010)

**18-518. Violations and penalty.** (1) Any customer having cross-connections, auxiliary intakes, by-passes, or inter-connection(s) in violation of this chapter shall, after a thorough investigation of existing conditions and an appraisal of the time required, complete the work within the time designated by the cross-connection control manager/coordinator or designee, but in no case shall the time for correction exceed ninety (90) days.

(2) Failure to comply with any order of the cross-connection control manager/coordinator or designee within the time set out therein shall result in the termination of water service.

(3) Where cross-connections, auxiliary intakes, by-passes, or inter-connections are found to constitute an extreme hazard of immediate concern of contaminating the public water supply, the cross-connection control manager/coordinator or designee shall require immediate corrective action be taken to eliminate the threat. Expeditious steps shall be taken to disconnect the public water system from the customer's piping systems unless the extreme hazard is correctly immediately.

(4) Failure to correct conditions threatening the safety of the public water system as prohibited by this chapter or *Tennessee Code Annotated*, § 68-221-711 within the time limits set by the cross-connection control

manager/coordinator or designee, or this chapter/policy, shall be cause for denial or termination of water service. If proper protection is not provided after times set forth in this policy/chapter, the cross-connection control manager/coordinator or designee shall give the customer written notification that water service is to be discontinued, and thereafter physically separate the public water system from the customer's system in such a manner that the two systems cannot be connected by an unauthorized person.

(5) In the event that a backflow prevention assembly is deemed failed (initial or annual performance evaluation), failure to install backflow prevention assemblies as requested by the water system, or there are deficiencies in the installation from failure to conform to the installation criteria specified in this chapter, or from deterioration, then the cross-connection control manager/coordinator or designee shall issue a written notice of failure or deficiency (within fourteen (14) days). The time limit is dependent on risk of contamination and may not be greater than ninety (90) days. (Ord. #350, March 2010)