

# TOWN OF CENTERVILLE

Ronnie Martin  
Mayor

**RECEIVED**

SEP 24 2009  
ENVIRONMENTAL FIELD OFFICE  
COLUMBIA

September 23, 2009

Department of Environment and Conservation  
Division of Water Supply  
Columbia Environmental Field Office  
1421 Hampshire Drive  
Columbia, TN 38401

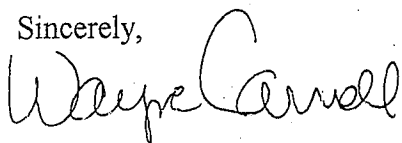
Re: Centerville Water System  
Sanitary Survey  
PWSID# 0000103

Mr. David Money

The Town of Centerville Cross Connection Ordinance approved upon the 2<sup>nd</sup> and final reading September 22, 2009, Cross Connection Control Plan. Please upon approval Return to the attention Centerville Water System Wayne Carroll, Cross Connections 769 Hwy 50 E. Centerville, TN 37033.

Please if you require additional information or questions contact this office.

Sincerely,



Wayne Carroll  
# 6658  
Cross Connections

# Centerville Water System Cross-Connection Control Plan

## I. Introduction

### A. Goal

The goal of the Centerville Water System is to supply safe water to each and every customer under all foreseeable circumstances. Each instance where water is used improperly so as to create the possibility of backflow due to cross connections threatens the health and safety of customers and chances of realizing this goal. The possibility of backflow due to improper use of water within the customer's premises is especially significant because such cross connections may easily result in the contamination of our water supply mains. Such situations may result in the public water system becoming a transmitter of diseased organisms, toxic materials, or other hazardous substances that may adversely affect large numbers of people. The only protection against such occurrences is the elimination of such cross connections or the isolation of such hazards from the water supply lines by properly installed approved backflow prevention assemblies. The Centerville Water System must continue maintenance of a continuing program of cross connection control to systematically and effectively prevent the contamination or pollution of all potable water systems.

### B. Plan of Action

The Centerville Water System is determined to take every reasonable precaution to ensure that cross connections are not allowed to contaminate the water being distributed to its customers. This cross connection plan outlines a course of action designed to control cross connection within the area served by the utility. This plan is intended to be a practical guide for safeguarding the quality of water distributed from becoming contaminated or polluted through backflow. By following the plan of action, the water provider will ensure that all aspects of the ordinance on Cross Connection Control are being followed by customer.

## II. Authority for Cross Connection Control

A copy of the ordinance, adopted 09-22-09, by the Utility Board is attached to this plan as Appendix 1. This ordinance prohibits cross connections within water systems, authorizes the water system to make inspections of the customer's premises, requires that cross-connection hazards be corrected and provides for enforcement. This ordinance expresses clear determination on the part of the Board that the water system is to be operated free of cross-connections that endanger the health and safety of those depending upon the public water supply. This ordinance is considered to be a sound basis for the control of cross-connection hazards by the operating staff and management of the Centerville Water System. The provisions, contained within this ordinance, are in keeping with the requirements set forth in Section 68-221-711 (6) of Tennessee Code Annotated and Section 1200-5-1-.17(6) of Tennessee Department of Environment and Conservation Rules governing Public Water Systems.

## III. Program To Be Pursued

**Centerville Water System**  
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residential customer will agree to not create cross-connections and a brochure is given to each new customer describing cross-connections and the responsibility of the customer in not creating one.

If the written questionnaire reveals that the new customer may have any of the following, an inspection will be required:

1. Lawn irrigation systems
2. Residential fire protection systems (closed loop systems will require a double check valve minimum)
3. Pools, Saunas, Hot Tubs, Fountains
4. Auxiliary Intakes and Supplies-wells, cistern, ponds, streams, etc.
5. Home water treatment systems
6. Hobbies that require extensive amounts of toxic chemicals (taxidermy, metal plating, biodiesel, ethanol production, etc.)
7. Any other situations or conditions listed in the manual or conditions deemed a threat by the water system.

Written questionnaires will be sent to existing residential customers to determine if potential cross-connections exist. The distribution system will be entirely surveyed within five years. The distribution system will continue to be surveyed in this manner. Questionnaires that reveal potential cross-connections based on the criteria above will be inspected and a determination if backflow prevention assemblies are needed.

The system will be surveyed for residential lawn irrigation systems through questionnaires received and by secondary meters. All residential lawn irrigation systems will require a reduced pressure principle assembly. Residential customers with pools, saunas, hot tubs not filled by a hard pipe directly or indirectly connected may be allowed to use an air gap (and may be requested to use an atmospheric vacuum breaker at the hose bibb). However, if the pool or vessels is connected directly or indirectly by a hard line, a reduced pressure principle assembly is required at minimum.

Residential customers required to have backflow prevention assemblies will be informed of possible thermal expansion problems within the establishment and correction of the condition.

**Well System Inspections:**

Wells drilled on properties that are supplied by a public water system, particularly those designed for chemigation and fertigation, will need to be inspected to ensure separation or the premises will require an approved assembly.

Wells that are drilled within the area of the distribution system within the last calendar year are inspected and a well user agreement is signed between the Community Water System and the customer. A list of existing wells that do not have a well user's agreement within the distribution area will be generated and ten (10) wells per year will be inspected until the entire list has been completed. Any well system that is connected directly or indirectly to the water system is required to disconnect or install a reduced

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The Centerville Water System will establish an active on-going cross-connection control program. This program is to be a continuing effort to locate and correct all existing cross-connection hazards and to discourage the creation of new problems. Safeguarding the quality of water being distributed to our customers is a high priority concern of the management of the Centerville Water System.

**A. Staffing**

The Centerville Water System has designated an individual to see that the program to control cross-connections is pursued in an aggressive and effective manner. It is proposed that ample time will be devoted to the program to ensure its effectiveness. Additional personnel will be added as is deemed necessary.

Nelson Harrington -- Cross Connections Control Coordinator

**B. Cross-Connection Control Surveys/Inspections**

A representative of the water system will survey the distribution for all customers, both residential and nonresidential, for possible cross-connections. If it is determined from the surveys that possible cross-connections may exist, the premise will be inspected. The need for backflow protection will be determined based on the results from the inspection. Notification of the type of backflow prevention assembly required and a date of compliance will be sent to the customer.

**Non-Residential:**

All new installation nonresidential and commercial establishments are required to have an approved backflow preventer installed, if needed, that is in agreement to the hazard present or be inspected every 5 years. The inspections will be performed on all new establishments before water service is established or within 90 days of connection. If there are existing establishments that have not been inspected, a list agreed upon by the State (based on risk and public safety) and time line for inspection by the water provider will be generated. All non-residential establishments not requiring an assembly will be inspected (every 5 years maximum). If establishment changes ownership (name listed on water bill), if plumbing permits are issued or irrigation systems installed, then an inspection will need to be performed (no later than 90 days). The need for backflow protection will be determined based on the results from the inspection. Notification of the type of backflow prevention assembly required and a date of compliance will be sent to the customer. (Attached is a list of criteria for requiring assemblies-Appendix A)

**Residential:**

For new residential customers, a written questionnaire will be given upon request for water service. If the survey reveals that a potential cross-connection may be present, an inspection is to be performed. The need for backflow protection will be determined based on the results from the inspection. Notification of the type of backflow prevention assembly required and a date of compliance will be sent to the customer. Each new

pressure principle assembly. The customer will be required to sign a well user agreement if no assembly is required. It is recommended that inspections be performed on new listings within the year, and then perform inspections on existing, un-inspected wells. The list is updated at the local environmental field office and is available to the water system.

New lines that are constructed in areas where residential areas have been mainly supplied by well systems are surveyed and inspected.

### **C. Public Education and Awareness Efforts**

The Centerville Water System recognizes that it is important to inform its customers of the health hazards associated with cross-connections and to acquaint them with the program being pursued to safeguard the quality of water being distributed. The water system will seek to use every practical means available to acquaint the customers with the health hazards associated with cross-connections in an effort to get cooperation. Use of customer surveys and annual newspaper notices will be incorporated into the notification plan.

Information will be provided to all customers about cross-connection control and backflow prevention by individual pamphlets or through a notice in the local newspaper at least once per year. A brochure will be given to all new customers requesting water service describing cross-connections and prevention of backflow.

The following measures may also be used to inform customers about the need to control cross-connections:

1. Posters at the counter where the water bills are paid displayed one month out of the year.
2.
  - a. Personal visits to commercial, industrial, institutional, and agricultural customers to explain the need for controlling cross-connections.
  - b. Whenever possible, any such potential customer will be informed of needed cross-connection measures in the design or construction stage.

### **D. Customer's Responsibility**

Cross-connections, created and maintained by the customer for his convenience endanger the health and safety of all who depend upon the public water supply. Therefore, the customer who creates a cross-connection problem shall bear the expense of providing necessary backflow protection and for keeping the protective measures in good working order. This includes repair, testing, installation, etc.

### **E. Enforcement**

Where cross-connections are found to exist, the Centerville Water System will require the problem to be eliminated or isolated by a properly installed, approved backflow prevention assembly to prevent the possibility of backflow into the distribution system. Such protective measures will include a backflow prevention assembly on the customer's

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water service line ahead of any water outlets. Every effort will be made to secure the voluntary cooperation of the customer in correcting cross-connection hazards. If voluntary action cannot be obtained with time set forth by written notice (90 days maximum for high and low hazard, 30 days maximum for high risk high hazards) to the customer, water service will be discontinued until conditions are in line with the water provider's ordinance for the protection of the health and safety of the water distribution system.

After surveys or inspections have been completed, the establishments will be contacted by written correspondence outlining any correction (adding or repairing backflow prevention devices) needed and the time schedule allowed for correction of conditions. If the conditions have not been corrected by the time allotment (90 days maximum for high and low hazard, 30 days maximum for high risk high hazards), the water service will be discontinued to the establishment, along with any fines or other penalties deemed necessary by the Centerville Water System.

The Centerville Water System may give additional warnings of discontinuance and/or bring about penalties before the water service is discontinued. The time period for correction will be determined by the water provider, based on the seriousness of the hazard and risk of contamination, ranging from immediate correction or time period of up to 90 days. The maximum allowable time for correction will be no more than 90 days. Those sites deemed high risk high hazard are corrected within a maximum limit of 30 business days, preferably immediate correction. If the conditions do not satisfy the ordinance or plan within 90 days, water service will be discontinued. In the case of backflow prevention devices on fire systems, it is recommended that the fire marshal be contacted before water service is discontinued, to prevent harm to anyone in case a fire occurred in a public building. The fire marshal can condemn the building, thus not allowing anyone to enter.

Water service will not be allowed to the establishment until all corrections have been made and all conditions of the ordinance have been satisfied.

**IV. Procedures for Inspections:**

The Centerville Water System hopes that its efforts to acquaint its customers with the hazards of cross-connections will be successful to the point that the customer will try to maintain their internal water delivery system free of cross-connections. It is recognized that many customers may not recognize that they have a situation that would permit backflow into the water supply lines. Therefore, a thorough investigation will be made of all premises considered likely to have cross-connections. Such inspections will involve the customer's entire water using equipment, and other system components in an effort to locate all actual and potential cross-connections. The findings will be reported to the owner or occupant in writing along with a request for needed corrective action necessary to properly protect the public water system.

**A. Field Visit Procedures:**

During the inspection, a field sheet will be completed showing details of significant findings. The hazards which cross-connections pose will be explained fully to the persons assisting the inspection. The customer will be informed that the information gathered during the inspection will be reviewed by the Water System's Cross Connection Control Coordinator and that a written report containing any recommendations and requirements will be mailed to them as soon as possible.

**B. Reports to Customers:**

The findings of the investigation will be summarized and a written report will be sent to the person assisting in the investigation, or the ranking management official of the establishment. Cross-connections found will be described briefly along with recommended method of correction. An effort will be made to keep the description of the findings and recommendations clear, concise and as brief as possible. The correspondence will indicate a willingness to assist with questions. The customer will be given a time limit for making the needed corrections depending (maximum of 90 days) upon the seriousness of the cross-connections involved and upon the complexity and difficulty of correcting the problems.

**C. Follow-up Visits and Re-inspections**

Follow-up visits will be made as needed to assist the customer and to assure that satisfactory progress has been made. Such visits will continue until all corrective actions have been completed to the satisfaction of the water system.

**D. Installation of Backflow Prevention Devices:**

Where the customer is asked to install a backflow prevention assembly, the customer will be supplied with a list of acceptable and approved assemblies. In addition, minimum acceptable installation criteria will be supplied. It will be pointed out that a unit cannot be accepted until the water system has verified that the installation fully meets the installation criteria and has been tested to verify that the assembly has a status of Passed. Such backflow prevention assemblies must have a make, model, and orientation currently listed as acceptable by the both the water system and Tennessee Department of Environment and Conservation.

**E. Technical Assistance:**

The customer will be urged to notify the water system when they are ready to begin installing either a reduced pressure or double check valve type backflow preventer assembly. The Water system cross-connection representative will visit the site to detail how the units must be installed to achieve the desired protection and to minimize maintenance and testing problems.

**V. Premises Requiring Reduced Pressure Principle Assemblies or Air Gap Separation**

**A. High Risk High Hazards**

Establishments which pose significant risk of contamination or may create conditions which pose an extreme hazard of immediate concern (High Risk High Hazards), the cross-connection control inspector shall require immediate or a short amount of time (30 days maximum), depending on conditions, for corrective action to be taken. In such cases, if corrections have not been made within the time limits set forth, water service will be discontinued.

High Risk High Hazards require a reduced pressure principle (or detector) assembly. The following list is establishments deemed high risk high hazard and require a reduced pressure principle assembly:

**High Risk High Hazards:**

1. Mortuaries, morgues, autopsy facilities
2. Hospitals, medical buildings, animal hospitals and control centers, doctor and dental offices
3. Sewage treatment facilities, water treatment, sewage and water treatment pump stations
4. Premises with auxiliary water supplies or industrial piping systems
5. Chemical plants (manufacturing, processing, compounding, or treatment)
6. Laboratories (industrial, commercial, medical research, school)
7. Packing and rendering houses
8. Manufacturing plants
9. Food and beverage processing plants
10. Automated car wash facilities
11. Extermination companies
12. Airports, railroads, bus terminals, piers, boat docks
13. Bulk distributors and users of pesticides, herbicides, liquid fertilizer, etc.
14. Metal plating, pickling, and anodizing operations
15. Greenhouses and nurseries
16. Commercial laundries and dry cleaners
17. Film Laboratories
18. Petroleum processes and storage plants
19. Restricted establishments
20. Schools and Educational Facilities
21. Animal feedlots, chicken houses, and CAFOs
22. Taxidermy facilities
23. Establishments which handle, process, or have extremely toxic or large amounts of toxic chemicals or use water of unknown or unsafe quality extensively.

**B. High Hazard**

In cases where there is less risk of contamination, or less likelihood of cross-connections contaminating the system, a time period of (90 days maximum) will be allowed for corrections. High Hazard is a cross-connection or potential cross-connection involving any substance that could, if introduced in the public water supply, cause death, illness, and spread disease. (See Appendix A)



## **VI. Premises Allowing Double Check Valve Assemblies**

### **Low Hazard**

Low hazard is 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. Low Hazards are protected by double check valve assemblies at minimum. Double check valve (and detector) assemblies used for main line protection are allowed only on Classes 1-3 fire protection systems (AWWA Classifications for Fire Systems).

## **VII. Inspection and Testing of Backflow Prevention Assemblies**

### **A. Approval of New Installations**

The Water System will not consider the installation of assemblies to be complete until:

1. The installation has been inspected, and approved by the water system based on installation criteria; and
2. Assembly is tested initially and has a status of Passed.

### **B. Routine Inspection and Testing of Assemblies**

To assure that all assemblies are functioning properly, assemblies will be tested within a 12 month (365 days from last test) period by backflow prevention assembly testers with a Certificate of Competency. If assembly is not tested within the 12 month period, enforcement action will be started. In conjunction with testing the assembly, the water system representative or approved tester will investigate to determine:

1. That cross-connections, actual or potential, have not been added ahead of the protective assemblies,
2. The assembly meets all installation criteria; and
3. The assembly has not been bypassed or altered in some other way to compromise the backflow protection.

All reduced pressure and double check valve backflow prevention assemblies, including detector assemblies, utilized for the protection of the water system will be tested by a person possessing a valid Certificate of Competency from the State and approved by the water system in keeping with the following criteria:

1. Immediately following installation;
2. At least every 12 months;
3. Any time assemblies have been partially disassembled for cleaning and/or repair and;
4. Where there is indication that the unit may not be functioning properly (i.e. excessive or continuous discharges from relief valve, chatter, or vibration of internal parts).

### **C. Accepted Test Procedure**

Tests of assemblies will be made using a 3 or 5 valve test kit that has valid annual certification in accordance to the latest approved testing procedure from the Division of Water Supply.

**D. Official Tests**

Only tests performed by persons possessing a valid Certificate of Competency will be considered official tests by the water systems. All test reports submitted must be of the type approved by the Division of Water Supply. All parts of testing procedure are recorded accurately on the test report with a determination of status (Passed or Failed). Certificates of Competency are not transferrable.

**E. Prior Arrangements for Testing**

Prior arrangements will be made for a mutually agreeable time for testing the assemblies prior to performing the test. In all cases, the time which water services are interrupted will be held to a minimum in order to minimize the inconvenience to the customer. The customer, upon notification by the water system, has an obligation to work out a mutually agreeable time for testing assemblies within time allotted by the water system.

**F. Repairs**

Should a protective assembly not be tested within the 12 month time frame be found defective or have a status of Failed, the water system will require the assembly to be repaired promptly with manufacturer's specified parts, in accordance to manufacturer's suggested procedure, and placed in proper operating condition within a (specified) time limit (maximum 90 days, 30 days for high risk high hazards). Following repairs, the assembly is to be tested again to verify that it is meeting performance standards and have a status of Passed. The owner will be held responsible for maintaining protective measures in a good state of repairs. The owner of an assembly needing repairs or maintenance will be permitted to do the work, if such owner is properly qualified or the owner may elect to secure the services of someone else experienced in the repair of the assemblies.

**VIII. Parallel Units**

The water system may require the installation of parallel assemblies if the customer cannot readily accommodate interruptions of water service for periodic testing and repairs of the assemblies or is unwilling to cooperate in scheduling a shutdown promptly for testing during normal hours worked by water system personnel.

**IX. Records**

Good records are invaluable in the water system's efforts to safeguard the quality of water being distributed against degradation from backflow through cross-connections. Adequate records will be maintained as a part of the Water System's permanent files to:

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- A. Document the overall effort of the water system to properly discharge its responsibility to see that each customer receives a safe water under all foreseeable circumstances;
- B. Give a complete picture as to the current status and history of the individual premises regarding the potential for backflow, corrections made, etc.;
- C. To support enforcement action, whenever necessary, to obtain backflow protection; and
- D. Document that assemblies have been properly installed, maintained, and tested routinely.

Records to be maintained by the Water System will include, but not necessarily be limited to the following;

- A. Master List of all Establishments with assemblies used for premise isolation, including location, assembly used, make, model, size, serial number etc.;
- B. Correspondence between water system and its customers
- C. Copy of Approved Plan
- D. Copy of Approved ordinance
- E. Test reports for each assembly
- F. Copies of Certificates of Competency for each tester
- G. Copies of test kit certifications
- H. Site Inspection Reports
- I. Residential written surveys
- J. Backflow incident reports
- K. Records on initial surveys, recommendations, follow-up, corrective action, routine re-inspections, etc.
- L. A file system designed to call to the attention of the cross-connection control personnel when testing and re-inspections of premises are needed.
- M. Public education pamphlets and information.

**X. Backflow Contamination Procedures:**

If contamination is caused by backflow, the Centerville Water System will take the following actions to protect the health of the customer:

- A. Isolate the lines containing any contaminant from the distribution system;
- B. Inform customers with contaminated lines not to consume or use the water;
- C. Report contamination to the local environmental field office;
- D. Determine and separate the cross-connection allowing the backflow and contamination;
- E. Remove contamination from lines;
- F. Test and ensure that lines meet Division of Water Supply regulations for safe water;
- G. Return service to affected customers once water is safe;
- H. Document the details of the incident including cause, isolation, and correction, and send report to the local environmental field office;
- I. Continue to survey and inspect system for similar situations that may allow backflow.


**XI. Modifications to Plan**

This plan may be modified from time to time to meet the needs of the utility and to meet the states requirements. The plan and ordinance will be reviewed by the water system every five

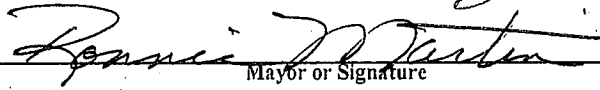
Centerville Water System  
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(5) years to determine if the existing plan meets requirements set forth by the Division of Water Supply and that it promotes an ongoing program. The manager shall be authorized to modify, as needed, this plan without the approval of the water system's governing body. The manager shall report any modifications to this plan to the board for their information, in a timely manner. The manager shall also advise the local environmental field office of any changes to this plan for their review and comments.

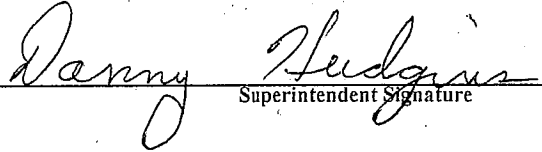
XII. Approval Signatures

  
\_\_\_\_\_  
State Approval Signature

Date: 09-25-09

  
\_\_\_\_\_  
Mayor or Signature

Date: 09-23-09

  
\_\_\_\_\_  
Superintendent Signature

Date: 09-23-09



STATE OF TENNESSEE  
**DEPARTMENT OF ENVIRONMENT AND CONSERVATION**  
**DIVISION OF WATER SUPPLY**  
Columbia Environmental Field Office  
1421 Hampshire Pike  
Columbia, TN 38401  
1-888-891-8332

September 25, 2009

Centerville Water Department  
Wayne Carroll  
P.O. Box 238  
Centerville, TN 37033

Re: Cross Connection Control Plan Approval  
Centerville Water System  
PWSID #0000103  
Hickman County


Dear Mr. Carroll:

The Cross Connection ordinance and revised Cross Connection Control Plan for the Centerville Water System submitted to this office have been reviewed. Both the ordinance and plan meet the guidelines established in the Division's *Cross Connection Control Manual* and are therefore **"Approved."**

The plan outlines a program of action, which, if actively pursued, should effectively control cross connections within your water system. The plan should be fully implemented.

Please call me with any questions you may have regarding this letter or any other cross connection issues.

Sincerely,



David Money  
Environmental Field Office Manager  
Division of Water Supply

cc: Nashville Central Office