COMMONWEALTH of VIRGINIA

Karen Remley, MD, MBA, FAAP
State Health Commissioner

J.Wesley Kleene, PhD, PE
Director, Office of Drinking Water

DEPARTMENT OF HEALTH
OFFICE OF DRINKING WATER
Abingdon Field Office

454 E. Main Street
Abingdon, VA 24210
Phone: 276-676-5650
Fax: 276-676-5659

November 2, 2010

SUBJECT: Washington County
Water - WCSA

Mr. Robert C. H. Cornett, General Manager
Washington County Service Authority
25122 Regal Drive
Abingdon, Virginia 24211-7444

Dear Mr. Cornett:

The Cross Connection Control and Backflow Prevention Program for the Washington County Service Authority located in Washington County, as prepared by the Washington County Service Authority, has been reviewed by this Department.

This letter is to advise that, following our review, the plan satisfies the requirements of Part II, Article 3 of the *Waterworks Regulations* and is therefore approved. A copy of the plan with our approval stamp is enclosed.

We commend the Washington County Service Authority for taking this action to comply with the *Waterworks Regulations*. If we may be of any assistance to you in implementing this program, please do not hesitate to call.

Sincerely,

Richard M. Puckett, P.E.
Engineering Field Director
Abingdon Field Office

ERH/jm
Enclosure

cc: Washington County Health Department-ATTN: Dr. Craig Smith
Washington County Administrator
Washington County Building Official
VDH - ODW - Richmond

Washington County Service Authority (WCSA)

Program of Cross Connection Control and Backflow Prevention

I. WCSA Board of Commissioners' Cross Connection Program Provisions

Adopted: Monday, October 25, 2010

II. Administration

The General Manager shall administer and enforce this program under the supervision of the WCSA Board of Commissioners. The Cross Connection Control Director, under the supervision of the General Manager or his designee, shall be responsible for the implementation of this program.

III. Definitions

air gap separation – the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying pure water to a tank, plumbing fixture, or other device and the rim of the receptacle.

atmospheric pressure – the pressure exerted by the weight of the atmosphere (14.7 psi at sea level). As the elevation above sea level increases, the atmospheric pressure decreases.

atmospheric (non-pressure) vacuum breaker – a mechanical device consisting of a float check valve and an air inlet port designed to prevent backsiphonage.

auxiliary water system – any water system on or available to the premises other than the waterworks. These auxiliary waters may include water from a source such as wells, lakes, or streams; or process fluids; or used water. They may be polluted or contaminated or objectionable, or constitute an unapproved water source or system over which the water purveyor does not have control.

backflow – the flow of water or other liquids, mixtures, or substances into the distribution piping of a waterworks from any source or sources other than its intended source.

backflow-prevention device (backflow preventer) – any approved device, method, or type of construction intended to prevent backflow into a waterworks.

back pressure (superior pressure) – a condition in which the pressure in a nonpotable system is greater than the pressure in the potable distribution system. Back pressure will cause nonpotable liquids to flow into the distribution system through unprotected cross connections.

backsiphonage – reversed flow of liquid caused by a partial vacuum in the potable distribution system.

containment – to confine potential contamination within the facility where it arises by installing a backflow-prevention device at the meter or curbstop.

contamination – the introduction into water of any substance that degrades the quality of the water, making it unfit for its intended use. Any objectionable or hazardous physical, chemical, biological, or radiological substance or matter in water.

cross connection – any connection or structural arrangement, direct or indirect, to the waterworks whereby backflow can occur.

cross connection control – the use of devices, methods, and procedures to prevent contamination of a potable water system through cross connections.

customer – any user of the system.

degree of hazard – the level of health hazard, as derived from an evaluation of the potential risk to health and the adverse effect upon the waterworks. Generally, a low degree of hazard is one that does not affect health, but may be aesthetically objectionable. A high degree of hazard is one that could cause serious illness or death.

distribution system – all piping, fittings, and fixtures whose purpose is to provide treated water to service connections.

double gate-double check valve assembly – an approved assembly composed of two single independently acting check valves including tightly closing shutoff valves located at each end of the assembly and petcocks and test gauges for testing the watertightness of each check valve.

isolation (policy) – to confine a potential source of contamination to the nonpotable system being served.

negative pressure – pressure that is less than atmospheric; negative pressure in a pipe can induce a partial vacuum that can siphon nonpotable liquids into the potable distribution system.

nonpotable – any liquid that is not considered safe for human consumption.

nontoxic – not poisonous; a substance that will not cause illness or discomfort if consumed.

owner – any person owning any property.

person – any individual, firm, partnership, corporation, association, society, or group.

physical disconnection – removal of pipes, fittings, or fixtures that connect a potable water supply to a nonpotable system or one of questionable quality.

plumbing – any arrangement of pipes, fittings, fixtures, and devices for the purpose of moving liquids for one point to another, generally within a single structure.

pollution – the presence of any foreign substance (chemical, physical, radiological, or biological) in water that tends to degrade its quality so as to constitute an unnecessary risk or impair the usefulness of the water.

potable water – water fit for human consumption and domestic use which is sanitary and normally free of minerals, organic substances, and toxic agents in excess of reasonable amounts for domestic usage in the area served and normally adequate in quantity and quality for the minimum health requirements of the persons served

premises – any building or group of buildings, or, any tract, lot, or parcel of land upon which buildings are to be constructed which is, or may be served by WCSA.

pressure – the weight (or air, water, etc.) exerted on a surface, generally expressed as pounds per square inch (psi).

pressure vacuum breaker – a device consisting of one or two independently operating, spring-loaded check valves and an independently operating, spring-loaded air-inlet valve designed to prevent backsiphonage.

reduced-pressure-principle or reduced-pressure-zone device (RP or RPZ) – a device containing a minimum of two independently acting check valves together with an automatically operated pressure differential relief valve located between the two check valves. During normal flow and at the cessation of normal flow, the pressure between these two checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the check valves at less than the supply pressure. The unit shall include tightly closing shut-off valves located at each end of the device, and each device shall be fitted with properly located test cocks. These devices shall be of the approved type.

refusal of service – a formal policy adopted by a governing board to enable a utility to refuse or discontinue service where a known hazard exists and corrective measures are not undertaken.

relief valve – a device designed to release air from a pipeline, or introduce air into a line if the internal pressure drops below atmospheric pressure.

service connection – the termination of the service line from the waterworks(WCSA's ownership ends with and includes the meter on potable water lines and other points of demarcation on fire service lines as deemed appropriate by the Cross Connection Control Director).

service line – a customer-owned and maintained line, connecting a customer's point-of-use with WCSA facilities, typically the water meter or saver element.

tenant – the occupant or inhabitant of the building being supplied potable water by WCSA; user who does not own the premises.

toxic – poisonous; a substance capable of causing injury or death.

user – any person who connects to and/or makes use of the Waterworks and/or Sanitary Sewerage Facilities.

residential – refers to a location used as a residence or by residents; also refers to apartments and churches (excluding churches which operate day schools on a routine continuing basis).

commercial – refers to non-residential users.

industrial – refers to users with categorical wastewater discharge, or who are located in or served through an industrial park.

vacuum – a condition induced by negative (subatmospheric) pressure that causes backsiphonage to occur.

WCSA – Washington County Service Authority – water supplier (purveyor).

IV. Purpose

Purpose of this Program is to abate or control actual or potential cross connections and protect public health and WCSAs distribution system. This Program provides for establishment and enforcement of a program of cross connection control and backflow prevention in accordance with the Commonwealth of Virginia, State Board of Health, *Waterworks Regulations* 2003, or as amended. The Program is directed at:

A. Service line containment when necessary:
Abate or control actual or potential cross connections and protect the public health by installation of an appropriate backflow prevention assembly or by installation of a backflow elimination method at the service connection if necessary. This option would be implemented only if necessary to consistently protect the public health if it cannot be reliably demonstrated that appropriate point-of-use protection on the customer's side of the meter is and will continue to be implemented.

B. Voluntary isolation in lieu of containment:
The alternative of point-of-use isolation protection in lieu of service line containment shall be evaluated at each connection where a possible cross connection or backflow problem is a potential issue.

C. Public Education and Assistance
Provide a cross connection awareness public education program and provide public assistance where requested.

D. Customer/Owner Awareness
In those situations where point-of-use protection is not a reliable method to prevent cross connections or effect backflow prevention, WCSA will advise the Building Official and the premises owner/tenant that service line containment does not provide health protection from cross connections for those obtaining water beyond the cross connection control device (on the premises of the service connection). Point-of-use isolation may be a better, and less costly, alternative for the customer, as they could be held legally and financially responsible for any backflow event occurring beyond the cross connection control device.

V. Authority

Commonwealth of Virginia, Department of Health, *Waterworks Regulations*, Part II, Article 3: Cross Connection Control and Backflow Prevention in Waterworks. This article requires, as a condition for the issuance and continued use of the waterworks operation permit, that WCSA establish and enforce a program of Cross Connection Control and Backflow Prevention.

This cross connection control and backflow prevention program is approved by the State health Commissioner as noted by the affixed approval stamp.

VI. Non-residential Customer Assessments

A. General

The non-residential customer/owner will be advised in writing of the results of the assessment, the assigned degree of hazard, and if any backflow safeguards are required or recommended or if any existing preventative and control measures need attention. These assessments reflect the opinion and advice of WCSA and do not relieve customer/owner of their ultimate responsibility for identifying and preventing backflow incidents by use of the proper devices or precautions. Furthermore, regardless of the results of the assessment, WCSA is not responsible for conditions on the customer/owner's side of the meter, and will accept no liability and no responsibility for damages caused by improper or illegal cross connections resulting in backflow incidents caused by conditions on the customer/owner's side of the meter.

B. Frequency

Once a non-residential customer has been evaluated they will be reminded in writing annually to have any existing backflow devices tested by a certified backflow device tester. These customers will also be required to make the Cross Connection Control Director aware of any changes in their water system or water usages since the previous year. These changes must be documented by customer in writing and sent to the Cross Connection Control Director.

1. WCSA may, at its discretion, schedule more frequent assessments at high hazard facilities.
2. WCSA will make a good faith effort to remind all non-residential customers, in writing, of the required testing of backflow devices, however, it is ultimately the responsibility of the customer to have backflow devices tested annually (or at the more frequent schedule if required by WCSA).

C. Type

Assessments will be conducted by on site interview, questionnaire, and/or survey for non-residential connections.

1. Completion of a questionnaire by all new non-residential customers will be required prior to service being provided. All service applications will be evaluated by the Cross Connection Control Director.
2. An initial on site interview will be conducted with the customer/owner concerning each non-residential connection identified in Section XIII, of this Program.
3. Other new non-residential customers/owners will receive an on-site inspection if warranted but as a minimum will be provided customer education materials and be required to submit a written survey before the building is occupied.
4. Existing non-residential connections will be evaluated on a case-by-case basis in order to determine the extent of inspections or surveys that are warranted.
5. Subsequent inspections will be scheduled by the Cross Connection Control Director dependent upon the level of risk the connection represents and according to compliance history.

D. Assessment By On Site Interviews

1. Available information about the premises to be surveyed will be gathered and reviewed prior to the interview.

2. The reasons for cross connection control and backflow prevention will be explained to the non-residential customer/owner.
3. Interviews will follow a prepared questionnaire used to assess the need for cross connection control by containment.
4. Water uses after it enters the premises will be determined. For large or complex plumbing systems, plumbing plans or schematics may be required by WCSA.
5. During these interviews, each installed device or separation will be inspected for appropriateness, proper installation and operating condition (including review of written test results).
6. Changes made in the plumbing system made since the last inspection will be documented in writing by the customer/owner. This may require revised plumbing system drawings or schematics.
7. Plans for future expansion and possible additional protection requirements will be discussed.
8. An inspection of the premises will be conducted by the Cross Connection Control Director to determine if point-of-use isolation may be installed in lieu of installing a backflow prevention assembly or device at the service connection.
9. The customer/owner should hire an independent expert to evaluate the potential of point-of-use isolation for the protection of their water supply system users.
10. All information will be recorded on the prepared questionnaire. This will include water uses, assessment of degrees of hazard and diagrams. The accuracy of this information must be documented by the customer/owner in writing.
11. The customer/owner may at his discretion elect to have an independent expert inspect the premises and offer recommendations. If these recommendations differ from those of WCSA, WCSA shall be given the opportunity to review and comment on the independent report. If WCSA does not agree with the recommendations of the independent report, WCSA retains the right and duty to require the customer/owner to properly install a containment device or impose other appropriate safeguards (including disconnection of the customer) at the point of connection.

E. Assessment By Mailed Questionnaire
1. The appropriateness, proper installation, and general appearance of each installed assembly, device or elimination method will be evaluated by the customer/owner for those facilities where annual questionnaires are deemed appropriate by WCSA. WCSA or independent qualified evaluators may be requested to provide technical assistance.
2. All questionnaires shall detail in writing all changes made to the plumbing system of the facility since the last questionnaire was completed, the last survey was made or the system began obtaining water from WCSA (whichever is appropriate).
3. The results of the annual questionnaires will be reviewed by the Cross Connection Control Director to gauge the degree of hazard and to assess the facility for new hazards. Based on the response to the questionnaires, cross connection control interviews will be scheduled and appropriate assemblies, devices, or separations will be required providing containment and/or point-of-use isolation where appropriate.

F. Assessment By Telephone Interview
1. For those facilities where telephone interviews will be conducted, the questionnaire used for mailings will be completed by the designated WCSA representative to reaffirm the degree of hazard and to assess the facility for new hazards. The completed questionnaire will be sent to the customer for review of the information and written confirmation of its accuracy.

2. During these interviews, each installed assembly, device, or elimination method will be discussed and evaluated to determine appropriateness, proper installation, and general appearance. Point-of-use isolation protection will be discussed with customer/owner.
3. If the aforementioned cannot be confirmed with certainty in a telephone interview, an on-site interview or other action may be required by WCSA.

G. Refusal or Lack of Response to Assessment Information
No response to a questionnaire or telephone interview will prompt an on-site interview. Refusal of access for interview or provision of pertinent information will prompt the designation of the service as a high hazard premise and the requirement to install a high hazard service line containment assembly or an alternate backflow elimination method such as physical separation if warranted. (See "Enforcement" below).

VII. Residential Customer/Owner Self-Assessments

A. Completion of a questionnaire by all new customers/owners will be required prior to service being provided.

B. In lieu of an annual assessment of residential connections, a continuous public education program will be provided to increase the awareness of cross connections and the public health hazards of backflow. The public education program will be designed to prompt residential customer/owner self-assessments and to contact WCSA with comments, questions or technical assistance.

The public education materials will seek to inform residential customers/owners of what a cross connection is and how a backflow incident may affect the safety of their and their neighbors' water supply. The public information materials will provide the resident the opportunity to ask questions in writing.

C. Public Education
The public education program will be a continuous program targeted at the residential customer/owner.

The cross connection control and backflow prevention public education program will include:
1. a discussion of the conditions that lead to backflow
2. a discussion of residential plumbing hazards having the potential for cross connections and backflow
3. a discussion of the potential health effects of cross connections and backflow
4. public education materials and methods of delivery
5. clubs, organizations, civic organizations, school systems, etc. where public education programs are presented or provided and program content
6. guidance/resources to identify actual or potential cross connections
7. safeguards to control or eliminate the hazards at the point-of-use
8. contact information for assistance
9. sources for additional information

D. Frequency
Contact will be made with residential customers/owners based on the following frequencies, at a minimum:

1. A mass mailing to all residential customers/owners, which includes the information shown above, shall be conducted annually
2. Notes will be added to customers'/owners' bills reminding them to be aware of cross connections and providing contact information for assistance. In addition, WCSA will attempt to notify customers/owners of all upcoming events in which WCSA will be in attendance to answer questions concerning cross connections.

VIII. Inventory

A. An inventory will be maintained by WCSA of all backflow prevention assemblies and devices and backflow elimination methods required. The inventory will also include all backflow prevention assemblies, devices, and backflow elimination methods installed as a result of residential customer self-assessments.

B. Documentation of the presence of pressure sensing devices to shut off or regulate the flow from pumps will be included.

C. Methods documented will include device installation as well as utilization of air gaps and physical separation.

IX. Testing and Inspection

A. Testing and inspection of all backflow prevention assemblies, devices, and backflow elimination methods is the responsibility of the customer/owner and is required to be conducted annually, at the expense of the customer's/owner's water supply system. The Cross Connection Control Director shall make a good faith effort to provide written reminders to those customers/owners to test installed devices and verify the presence of air gaps no less than 30 days prior to the due date. The Cross Connection Control Director may, at his discretion, schedule more frequent testing and inspection at high hazard facilities or facilities with a history of non-compliance. Appeals of accelerated or more stringent requirements shall be made directly to the WCSA General Manager.
   1. Operational testing or work shall be performed by Backflow Prevention Device Workers certified by the Virginia Department of Professional and Occupational Regulation, Virginia Board for Contractors, under the Tradesman Regulations, to test and repair assemblies. Assembly testing procedures shall be those acceptable to the DPOR, Board for Contractors. Assembly test equipment shall conform to the USC Field Test Kit Standard as test equipment is made available.
   2. Until 5 years from the date of adoption of this Program, individuals who have obtained a certificate of completion of a course of instruction of sixteen hours or more recognized by the Tradesman Regulations may have their work accepted.
   3. The customer/owner shall cause all backflow prevention assemblies, devices, or backflow elimination methods required under Section IX, to be maintained in good working order and shall not make or cause to be made any piping or other arrangements or modifications for the purpose of bypassing or defeating assemblies, devices, or backflow elimination methods.

B. Where a continuous public education program is in effect, the operational testing and inspection schedule will include all backflow prevention assemblies, devices, and backflow elimination methods installed as a result of residential assessments.

C. The customer/owner shall provide copies of assembly test results, maintenance records, and overhaul records to the WCSA within 30 days of completion of such testing or work.

D. Copies of updated plumbing diagrams or verbal descriptions of changes in plumbing made during the previous year, test results, maintenance records, and overhaul records will be reviewed for completeness and accuracy and a determination as to pass or fail made. The Cross Connection Control Director will notify the customer/owner within 10 working days of receipt of such testing or work and its acceptability or notice of inspection by WCSA. Should any significant changes in the consumer's plumbing system be found (as may be evidenced by a change in water usage patterns) an on-site inspection will be conducted or ordered by the Cross connection Control Director. Should any additional Cross Connection protection requirements result, the customer/owner will be informed of these changes in writing.

X. Backflow Events

In the event of the backflow of pollution or contamination into the waterworks, upon consultation with the Cross Connection Control Director and other WCSA staff as he may deem necessary, the General Manager will promptly take or cause corrective action to confine and eliminate the pollution or contamination. The General Manager will report to the appropriate Commonwealth of Virginia, Department of Health, Office of Drinking Water, Field Office in the most expeditious manner (usually by telephone) when backflow occurs and will submit a written report by the 10th day of the month following the month during which backflow occurred. The report will address the incident, its causes, effects, and preventative or control measures required or taken.

XI. Enforcement

The Cross Connection Control Director, in consultation with the General Manager and other WCSA technical staff (as he deems necessary) will take positive action to ensure that the waterworks is adequately protected from cross connections and backflow at all times. Appropriate preventive and control measures will be universally required and installed.

If a required assembly, device, or elimination method is not installed, tested, and maintained in accordance with the applicable sections of the Program; or if a required assembly, device, or elimination method has been removed or bypassed; or if unprotected cross connections exist on the premises and the General Manager has determined that there is inadequate backflow prevention at the service connection, the General Manager shall have the obligation and authority to discontinue or refuse the water service to any customer until the deficiencies have been corrected or eliminated to the satisfaction of the Cross Connection Control Director in consultation with the General Manager.

A. Cross connections that in the opinion of the Cross Connection Control Director or General Manager pose an imminent threat to the health and safety of WCSA customers will necessarily be dealt with swiftly and decisively by WCSA. WCSA reserves the right to immediately and without notice to the customer/owner suspend domestic and/or fire protection water service in such a circumstance and to take any necessary action deemed appropriate on its own system to mitigate the threat. The offending customer/owner shall bear all costs for insuring the waterworks may be operated in a manner to insure the health, safety and welfare of the all of the waterworks' customers and will be held liable for costs associated with such actions and remediation.

1. It is the sole responsibility of the customer/owner to notify the Local and State Fire Marshall as well as other authorities (insurance company, etc.) of the suspension of the water system.

B. WCSA's ownership and regulatory authority ends with and includes the meter on potable water lines and other point(s) of demarcation on fire service lines as deemed appropriate by the Cross Connection Control Director. Therefore, in so as far as WCSA is concerned, the conditions of the water supply and the plumbing system on the customer's/owner's side of the meter is strictly and ultimately the responsibility of the customer/owner of those premises. While these conditions may be governed by other laws, regulations, codes, or agreements, WCSA's initial provision and continuance of the water supply service is contingent upon the customer's/owner's proper maintenance of the condition of the plumbing system. To facilitate proper and timely execution of its responsibilities for the protection the water supply infrastructure, WCSA requires the following:
   1. The right of inspection of any plumbing system served by WCSA infrastructure, with prior written notice from the WCSA General Manager to the customer/owner in a reasonable time period for the purposes of investigating possible cross connections or failure of cross connection control devices,
   2. The right to refuse or discontinue service to any connection for which access to the premises is denied by the customer/owner or otherwise prevented due to actions or conditions controlled by the customer/owner.
   3. Notification of the local building official.

C. A written report of enforcement action activities (emergency) and recommendations for action (non-emergency) shall be submitted monthly to the General Manager by the Cross Connection Control Director.

XII. Consumer Notification

A. The Cross Connection Control Director will notify the customer/owner in writing as to the:
   1. recommended location of any assembly, device, or backflow elimination method;
   2. type of assembly, device, or backflow elimination method, including applicable University of Southern California Foundation for Cross Connection Control and Hydraulic Research (USC), American Society of Sanitary Engineering (ASSE), and American Water Works Association (AWWA) approvals, listings, or standards;
   3. installation requirements;
   4. and the deadline for completing the installation, (normally 15 days but sooner should it be authorized by the General Manager should the situation dictate a more immediate response to protect the integrity of the WCSA water system).

B. If the customer/owner fails to install any required assembly, device, or backflow elimination method within the deadline or fails to complete testing, inspecting or overhauling as required, a Notice of Violation will be prepared and will include a schedule of compliance. Appeals to the requirements of this schedule shall be made in writing to the WCSA General Manager within 15 days.

C. In situations that pose an imminent threat to the health and safety of WCSA customers, the General Manager may terminate water service immediately.

XIII. Prevention and Elimination Measures for Containment – Where Required

A. A backflow prevention assembly or backflow elimination method shall be installed where any of the following conditions exist. The type of assembly or method required shall depend on the degree of hazard determined according to Table 1, Determination of Degree of Hazard.
   1. Premises on which any substance is handled in such a manner as to create an actual or potential hazard to the waterworks (this shall include premises having auxiliary water systems or having sources or systems containing process fluids or waters which are no longer under the control of the WCSA).
   2. Premises having internal cross connections that, in the judgment of the WCSA may not be easily correctable or having intricate plumbing arrangements that make it impracticable to determine whether or not cross connections exist.
   3. Premises where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to make an assessment of all cross connection hazards having the potential for impairing the quality of the water as delivered.
   4. Premises having a repeated history of cross connections being established or reestablished.
   5. Premises having fire protection systems, lawn sprinkler systems, or irrigation systems that do not protect the WCSA distribution system through the use of approved backflow prevention methodologies that reliably and consistently protect the WCSA water supply system.
   6. Premises having frostproof yard hydrants, drinking fountains or other appurtenances or plumbing fixtures with below-grade weep holes subject to contamination.
   7. Other premises having conditions specified by the WCSA where cause can be shown that a potential cross connection hazard not enumerated above exists and is not mitigated.

B. Premises having booster pumps or fire pumps connected directly to the waterworks or indirectly through a service connection shall have the pumps equipped with a pressure sensing device to shut off or regulate the flow from the pumps when the pressure at any service connection in the distribution system drops below the minimum working pressure required of 20 psi. In no case shall the pressure sensing device be set lower than 10 psi gauge.

C. Of special consideration for the requirement of containment devices shall include the following types of facilities:
   1. Hospitals, mortuaries, clinics, veterinary establishments, nursing homes, dental offices and medical buildings;
   2. Laboratories;
   3. Piers, docks, waterfront facilities;
   4. Sewage treatment plants, sewage pumping stations, or storm water pumping stations;
   5. Food and beverage processing plants;
   6. Chemical plants, dyeing plants and pharmaceutical plants;
   7. Metal plating industries;
   8. Petroleum or natural gas processing or storage plants;
   9. Radioactive materials processing plants or nuclear reactors;
   10. Car washes and laundries;
   11. Water loading stations;

12. Lawn care companies and their vehicles with storage or mixing tanks;
13. Slaughter houses and poultry processing plants;
14. Farms where the water is used for other than household purposes;
15. Commercial greenhouses and nurseries;
16. Health clubs with swimming pools, therapeutic baths, hot tubs or saunas;
17. Paper and paper products plants and printing plants;
18. Pesticide or exterminating companies and their vehicles with storage or mixing tanks;
19. Schools or colleges with laboratory facilities;
20. High-rise buildings (4 or more stories);
21. Multi-use commercial, office, or warehouse facilities;
22. High density, multi-use residential complexes served through a master meter.
23. Others specified by the WCSA when reasonable cause can be shown for a potential backflow or cross connection hazard.

D. Where lawn sprinkler systems, irrigation systems or fire protection systems are connected directly to the waterworks with a separate service connection, a backflow prevention assembly or backflow elimination method shall be installed.

E. All temporary or emergency service connections shall be protected where in the judgment of the WCSA a health, pollutional, or system hazard to the waterworks exists or may exist for a potential backflow or cross connection hazard.

XIV. Type of Protection Required

A. The type of protection required shall depend on the degree of hazard, which exists or may exist. The degree of hazard, either high, moderate, or low, is based on the nature of the contaminant; the potential health hazard; the method of backflow (either by backpressure or by backsiphonage); and the potential effect on waterworks structures, equipment, and appurtenances used in the storage, collection, purification, treatment, and distribution of pure water. Table 1 shall be used as a guide to determine the degree of hazard for any situation.

B. Backflow elimination methods, which include the air gap, physical disconnection, and discontinuance or refusal of service, give the highest degree of protection and shall be used whenever practical to do so in high hazard situations subject to backpressure.
   1. The minimum air gap shall be twice the effective opening of a potable water outlet unless the outlet is a distance less than three times the effective opening away from a wall or similar vertical surface, in which case the minimum air gap shall be three times the effective opening of the outlet. In no case shall the minimum air gap be less than one inch.
   2. Physical disconnection and discontinuance or refusal of service eliminates any connection, direct or indirect, between a waterworks and a nonpotable or questionable quality system.

C. Backflow prevention assemblies for containment shall be the reduced pressure principle backflow prevention assembly (RP or RPZ), the double gate-double check valve assembly (DG-DC), the pressure vacuum breaker assembly (PVB), or the atmospheric vacuum breaker (AVB).

D. An air gap, physical disconnection, RPZ, or discontinuance or refusal of service will protect against backpressure and backsiphonage.

E. A RPZ shall be used in high hazard situations subject to backpressure where it is impractical to eliminate the cross connection by an air gap or physical disconnection.

F. PVBs and AVBs will not protect against backpressure, but will protect against backsiphonage. PVBs and AVBs may be used in low, moderate or high hazard situations subject to backsiphonage only.

G. A DG-DC will protect against backpressure and backsiphonage but it shall not be used in high hazard situations.

H. Barometric loops are not acceptable.

I. Interchangeable connections or changeover devices are not acceptable.

J. Backflow prevention assemblies shall conform to the latest available American Water Works Association (AWWA) standards; shall hold current University of Southern California Foundation for Cross connection Control and Hydraulic Research (USC) approval; and shall be listed by the American Society of Sanitary Engineers (ASSE).

K. Backflow prevention assemblies shall be installed, maintained, and repaired in accordance with the University of Southern California Foundation for Cross Connection Control and Hydraulic Research (USC) and the manufacturer's instructions. Orientation of the assembly shall be as approved by the USC.

L. For the purpose of application of point-of-use isolation protection in lieu of service line containment, assemblies or devices, or backflow elimination methods shall be as specified by WCSA where reasonable assurance can be shown that the assembly, device, or method will protect the waterworks. As a minimum, devices used in point-of-use isolation shall be listed by the American Society of Sanitary Engineering (ASSE) and comply with the Uniform Statewide Building Code. Assemblies used in point-of-use isolation shall be in compliance with Section XIV K. and L. See Table 2, Assembly and Device Application.

M. Backflow prevention devices or assemblies with openings, outlets, or vents that are designed to operate or open during backflow prevention shall not be installed in areas subject to flooding or in pits and shall be installed in a free atmosphere.

N. Backflow prevention devices or assemblies shall not be subjected to operating conditions of working pressure, backpressure, temperature, or flow rate which exceed the test conditions of the performance evaluation standard under which the device is listed (ASSE) or the assembly is approved (USC).

XV. Locating Prevention and Elimination Measures for Containment

A. The location of service line containment assemblies or backflow elimination methods will be determined by property survey, where necessary.
   1. Typically backflow prevention assemblies or backflow elimination methods are installed at the service connection to the consumer's water supply or inside the building.
      a. If installed inside the building or downstream of the service connection, the installation location must be prior to any unprotected takeoffs. In addition, the customer/owner must:

i. provide WCSA access to inspect the backflow prevention assembly or elimination method immediately upon request,
ii. certify in writing annually to WCSA that no additional connections have been made between the backflow prevention assembly or elimination method and the water main,
iii. test the backflow prevention assembly at least annually (unless more frequent testing is required by the Cross Connection Control Director).

2. Containment measures serving public buildings or other facilities may be located on public property upon receiving the necessary approvals, easements, or permissions from the property owner.
3. Where the assembly or backflow elimination method will be located within the jurisdiction of the Local Building Official, it must be located prior to any unprotected takeoffs. The Local Building Official will be advised prior to installation.

B. Point-of-Use Isolation In Lieu of Service Connection Containment:
Where, in the judgment of the Cross Connection Control Director, all actual or potential cross connections can be easily abated or controlled at each point-of-use and where the consumer's water supply system is not intricate or complex, point-of-use isolation protection by application of appropriate backflow prevention assemblies or devices or backflow elimination methods may be applied in lieu of installing a backflow prevention assembly or backflow elimination method at the service connection. Table 2, Assembly and Device Application, shall be used as a guide to determine the appropriate backflow assembly or device where point-of-use isolation protection is being applied in lieu of service line containment. Point-of-use isolation protection by application of appropriate backflow prevention assemblies, devices, or elimination methods may be used if the following conditions are met:

1. The method of protection provided shall be, in the judgment of the Cross Connection Control Director, the method which best provides protection; and
2. The customer/owner grants access for inspections and makes a request in writing for point-of-use isolation protection; and
3. The Local Building Official concurs or does not object.

Assemblies, devices, or elimination methods installed under this section will be selected from Table 2 – Assembly and Device Application.

Point-of-use isolation protection applied in lieu of service line containment will be in accordance with the Memorandum of Agreement between the Department of Housing and Community Development and the Department of Health. See attachments.

XVI. Pressure Sensing Devices

Hydraulic analysis will be used to determine the set point of required pressure sensing devices used to shut off or regulate the flow from pumps connected directly or indirectly to the distribution system. The device shall be set at the service connection pressure which corresponds to the minimum working pressure required at the critical node in the affected distribution system subsystem. See *Waterworks Regulations* § 12 VAC 5-590-690C for minimum working pressure requirements. In no case shall the pressure sensing device be set lower than would provide 20 psi (gage pressure) at the customer's meter.

XVII. Approved Backflow Safeguards

The Cross Connection Control Director will ensure that backflow prevention assemblies installed under this Program hold current approval by the USC. The customer/ owner will be notified of any USC Special Notice which may affect the status of an installed assembly.

XVIII. Temporary or Emergency Connections and Water Loading Stations

Requests for temporary or emergency service connections and temporary or permanent water loading stations will be directed to the Waterworks Distribution System Supervisor for approval. The Waterworks Distribution System Supervisor shall make the Cross Connection Control Director aware of the request and ask for input.

The Waterworks Distribution System Supervisor will perform periodic inspections of these facilities.

XIX. Coordination

A. The Cross Connection Control Director will send through the Local Building Official all new plans for service connections to serve fire service connections, lawn sprinkler systems, or irrigation systems. In addition, the Cross Connection Control Director will copy the Local Building Official on all backflow prevention recommendations.

B. The WCSA General Manager will ensure communication between the Cross Connection Control Director and the Local Building Official of cross connection control requirements at new premises, premises where usage has changed, premises where booster or fire pumps are used, and all others where plumbing modifications occur. In instances of conflict between the directives of the Building Official and the WCSA the most restrictive will generally apply unless the General Manager in consultation with the Building Official and his supervisors decides otherwise.

C. Required assemblies shall be tested and inspected and required elimination methods shall be inspected by the Cross Connection Control Director prior to service being provided.

D. A follow-up inspection of newly required assemblies will be performed by the Cross Connection Control Director within 30 days of occupancy.

XX. Premises With Individual Water Supplies

A. Premises with individual water supplies requesting a new service connection or reconnection to the waterworks will not be allowed to leave the individual water supply interconnected with the plumbing system served by the WCSA waterworks. A physical disconnection between the individual private water supply and all plumbing systems served by the WCSA water supply shall be maintained at all times.

B. Premises with individual water supplies, i.e., an auxiliary water system, may, upon approval of the Waterworks Distribution System Supervisor, maintain the water supply on the premises if the auxiliary water system is physically disconnected from all plumbing systems served by the WCSA. Maintenance of the physical disconnection and access for inspection of this physical disconnection upon demand by WCSA must be provided for. Failure to allow WCSA officials to inspect and confirm the permanent

physical disconnection shall be deemed as evidence of a high hazard cross connection which will result in the immediate suspension of water service by WCSA.

C. Subsequent inspection frequency will be determined on a case-by-case basis by the Cross Connection Control Director. Inspections and assessments will be conducted to verify the maintenance of the physical disconnection.

XXI. Records

A. Records of inspections of backflow prevention assemblies or devices or backflow elimination methods; test results of backflow prevention assemblies; assessments of consumer's water supply systems; and backflow incidence reports, for both residential and non-residential customers will be maintained by the Cross Connection Control Director for ten years. Continuous public education program records will be maintained by the Cross Connection Control Director for ten years.

B. An up-to-date listing of all customers will be maintained by the Cross Connection Control Director. The list will contain:
   1. owner of premises
   2. tenant
   3. name of premises
   4. service address
   5. phone number
   6. contact person
   7. number of service connections
   8. size of service connection
   9. annual assessment type: (on site interview) (mailed questionnaire) (telephone interview) (mailed public education materials)
   10. assessment frequency
   11. assigned degree of hazard

C. Continuous public education program records will be maintained by the Cross Control Director for ten years. The records will contain:
   1. owner and address of residence
   2. occupant if different from owner
   3. telephone number
   4. brief explanation of the program
   5. brief explanation of causes of backflow and preventative and control measures
   6. brief explanation of residential plumbing hazards having the potential for cross connections and backflow
   7. brief explanation of the potential health effects of cross connections and backflow
   8. public education materials
   9. methods of Delivery
   10. other educational activities
   11. guidance and resources to identify actual or potential cross connections
   12. existing cross connection control safeguards
   13. who to contact for further information
   14. who to contact if contamination is ever suspected
   15. sources for additional information
   16. documentation of all public contacts including assistance provided

D. An up-to-date listing of consumer's water supply system owners who have cross connection control safeguards installed will be maintained by the Cross Connection Control Director. The list will contain:
   1. owner of premises
   2. tenant
   3. name of premises
   4. service address
   5. phone number
   6. contact person
   7. substance of concern
   8. assigned degree of hazard
   9. location of cross connection preventative and control measures
   10. type of prevention or elimination measures: (service line containment) (point-of-use isolation)
   11. type of protection: (USC assembly) (ASSE device) (pressure sensing device) (air gap) (physical disconnection)
   12. manufacturer
   13. model number
   14. serial number
   15. size
   16. ASSE number
   17. testing and inspection frequency: (annually) (semi annually) (quarterly)
   18. pressure sensing device pressure set point and basis for this set point
   19. access documentation: (on file) (denied) (not necessary)

E. An up-to-date listing of consumer's water supply system owners who have an auxiliary water system available to the premises. In addition to the applicable records noted above, the water usage records will be reviewed to determine if the auxiliary water system is being used.

F. Questionnaires will be maintained by the Cross Connection Control Director for 10 years. The questionnaire will contain:
   1. owner and address of residence
   2. occupant if different from owner
   3. telephone number
   4. brief explanation of the program
   5. brief explanation of causes of backflow and preventative and control measures
   6. some likely cross connections:
      a. a garden hose with its outlet submerged
      b. kitchen sink spray hose with its spray head submerged
      c. hand-held shower massager with its head submerged
      d. garden hose used as an aspirator to spray soap or garden chemicals
      e. spring, hot-tub, cistern, or swimming pool connected to the house plumbing system
      f. water softeners improperly connected
   7. specific questions which will include but not be limited to:
      a. individual wells, springs or cisterns on the property
      b. pressure booster pumps
      c. water storage tanks
      d. water treatment systems
      e. outside hose bibs used in conjunction with:

i. chemical sprayers
ii. jet spray washers
iii. swimming pools, hot tubs, saunas, etc.
iv. lawn sprinkler or irrigation systems

f. photographic developing
g. utility sinks with hoses extending below sink rim
h. animal watering troughs

8. existing cross connection control safeguards:
   a. working properly
   b. leaking, noisy
   c. any modifications or repairs made
   d. date of last test
   e. any problems with hot water tank relief valve or faucet washers not lasting very long
9. also included with the questionnaire should be:
   a. educational material
   b. who to contact for further information
   c. who to contact if contamination is ever suspected
   d. a deadline to respond to the questionnaire

G. Assessment reports shall be maintained by the Cross Connection Control Director for 10 years. The report will contain:
   1. inventory information as noted above
   2. completed questionnaire
   3. assessment report of:
      a. degree of hazard
      b. appropriateness of assembly, device, or backflow elimination method
      c. installation acceptable
      d. general condition of assembly, device, or backflow elimination method
      e. repair/replacement recommendations
      f. new/additional assembly, device, or backflow elimination method recommendations
      g. any indication of thermal expansion problems

H. Testing reports shall be maintained by the Cross Connection Control Director for 10 years. Testing reports will contain:
   1. inventory information as noted above
   2. line pressure
   3. results of testing
   4. test method used
   5. date, signature, and certification number of the Backflow Prevention Device Worker
   6. If repairs were made, the test report will contain:
      a. which parts replaced
      b. replacement parts used
      c. probable cause of test failure
      d. preventative measures taken

XXII. Assembly, Device, and Separation Selection Guidelines

Selection of assembly, device, and backflow eliminations methods shall be in accordance with:

A. Virginia Cross Connection Control Association — Recommended Best Practice

B. International Plumbing Code and its Commentary

C. EPA *Cross connection Control Manual*

D. Virginia *Waterworks Regulations*

E. AWWA M-14 Cross Connection Control Manual

F. University of Southern California, Foundation for Cross Connection Control and Hydraulic Research

XXIII. Examples:

Types of Facilities	**Probable Degree of Hazard**	**Type of Containment Assembly Required**
Hospitals, mortuaries, clinics, veterinary establishments, dental offices, nursing homes, and medical buildings	High	Reduced Pressure Principle Device (RPZ); ASSE #1013
Laboratories	High	RPZ; ASSE #1013
Piers, docks, waterfront facilities	High	RPZ; ASSE #1013
Sewage treatment plants, sewage pumping stations, or storm water pumping stations	High	RPZ; ASSE #1013
Food and beverage processing plants	Moderate (Generally)	Double Gate-Double Check Valve Assembly (DG-DC) ASSE #1015
	High (Use of toxics, etc., in processing)	RPZ; ASSE #1013
Chemical plants, dyeing plants and pharmaceutical plants	High	RPZ; ASSE #1013
Metal plating industries	High	RPZ; ASSE #1013
Petroleum processing or storage plants	High	RPZ; ASSE #1013
Radioactive materials processing plants or nuclear reactors	High	RPZ; ASSE #1013
Car washes and laundries	High	RPZ; ASSE #1013
Water loading stations	High	Air Gap Physical Disconnection or RPZ; ASSE #1013
Lawn sprinkler systems, irrigation systems	High	RPZ; ASSE #1013 or Atmospheric Vacuum Breakers (AVB); ASSE #1001 or Pressure Vacuum Breaker (PVB); ASSE #1020, Depending on method of backflow and pressure or flow conditions
Fire service systems	High	RPZ; ASSE #1013

Types of Facilities	Probable Degree of Hazard	Type of Containment Assembly Required
Slaughter houses and poultry processing plants	High	RPZ; ASSE #1013
Farms where the water is used for other than household purposes	High	RPZ; ASSE #1013
Commercial greenhouses and nurseries	High	RPZ; ASSE #1013
Health clubs with swimming pools, therapeutic baths, hot tubs or saunas	High	RPZ; ASSE #1013
Paper and paper products plants and printing plants	High	RPZ; ASSE #1013
Pesticide or exterminating companies and their vehicles with storage or mixing tanks	High	RPZ; ASSE #1013 (at service connection and on vehicles)
Schools or colleges with laboratory facilities	High	RPZ; ASSE #1013
High-rise buildings (4 or more stories)	Moderate (Unless otherwise covered)	DG-DC; ASSE #1015
Multiuse commercial, office, or warehouse facilities	Moderate (Unless otherwise covered)	DG-DC; ASSE #1015
High-density, multi-use residential complexes served through a master meter	Moderate (Unless otherwise covered)	DG-DC; ASSE #1015

All containment assemblies will comply with AWWA Standards, be approved for containment by the USC, and be listed by the ASSE. In high hazard situations subject to backpressure, backflow prevention by an elimination method should be the method of choice, wherever practical.

XXIV. Device Testability/Serviceability

A. Containment or point-of-use isolation assemblies used within the consumer's water supply system that are capable of being tested and repaired in-line include the RPZ, DG-DC, and PVB.

B. Residential Dual Checks without an intermediate atmospheric vent and Boiler Dual Checks with an intermediate atmospheric vent are testable but most of these ASSE listed devices must be removed for testing. Some can be overhauled in-line.

C. Generally, a visual inspection is the only means to inspect most Hose Bibb Vacuum Breakers (HBVBs) since they cannot be removed if installed in accordance with the manufacturer's instructions. Some manufacturers do provide frostproof wall hydrants with HBVBs which can be easily removed for inspection and replacement.

D. Pipe connected AVBs can be inspected by removing the top cover.

E. Air gaps, physical disconnection, and discontinuance or refusal of water service require only a visual inspection.

XXV. Consumer Education Literature

(See Attachment F)

XXVI. Typical Installation Sketches

(See Attachment E)

XXVII. Thermal Expansion

Customers will be advised of the potential for thermal expansion prior to or during installation of a backflow prevention device. Solutions to thermal expansion will be at the discretion of the consumer's water supply system owner and at the expense of the consumer's water supply system owner.

See Attachment P for consumer education literature.

XXVIII. Definitions

As used in this Program, the words and terms shall be as defined in Section III of this Program or in the Commonwealth of Virginia, State Board of Health, *Waterworks Regulations* 2005, or as amended.

XXIX. Attachments

A. Table 1, Determination of Degree of Hazard
B. Table 2, Assembly and Device Application
C. Department of Housing and Community Development Memorandum of Agreement
D. List of certified Backflow Prevention Device Workers
E. Typical Installation sketches
F. Education Literature
G. Questionnaire
H. Report of Assessment Letter
I. Device Testing Due Letter
J. Device Repair Needed Letter
K. Test Form
L. Transmittal of Test Results Letter
M. Device Required Letter
N. Notice of Violation Letter
O. Termination of Service Letter/ Language to be used for phone conversation
P. Thermal Expansion Possible Educational Literature
Q. Verification of Auxiliary Water Supply Physical Disconnection Due Letter
R. Guidance document for communication with Building Official

Attachment A

TABLE 1 — Determination of Degree of Hazard

Cross connections that meet or may meet the following conditions shall be rated at the corresponding degree of hazard.	
High Hazard	The contaminant is toxic, poisonous, noxious or unhealthy. In the event of backflow of the contaminant, a health hazard would exist. A high probability exists of a backflow occurrence either by backpressure or by backsiphonage. The contaminant would disrupt the service of piped water for drinking or domestic use. Examples — Sewage, used water, nonpotable water, auxiliary water systems and toxic or hazardous chemicals.
Moderate Hazard	The contaminant would only degrade the quality of the water aesthetically or impair the usefulness of the water. In the event of backflow of the contaminant, a health hazard would not exist. A moderate probability exists of a backflow occurrence either by backpressure or by backsiphonage. The contaminant would not seriously disrupt service of piped water for drinking or domestic use. Examples — Food stuff, nontoxic chemicals and non-hazardous chemicals
Low Hazard	The contaminant would only degrade the quality of the water aesthetically. In the event of backflow of the contaminant, a health hazard would not exist. A low probability exists of the occurrence of backflow. Backflow would only occur by backsiphonage. The contaminant would not disrupt service of piped water. Examples — Food stuff, nontoxic chemicals and non-hazardous chemicals.

Attachment B

Table 2 – Assembly and Device Application

Degree of Hazard	Method of Backflow	Pressure or Flow Conditions	Device	ASSE #
High	BP or BS	Continuous	RPZ*	1013 & 1047
	BS only	Non-continuous	Pipe Applied AVB*	1001 & 1035
		Non-continuous	Hose Bibb AVB	1011 & 1052
		Non-continuous	Wall Hydrant w/AVB	1019
		Continuous	PVB*	1020 & 1056
Moderate	BP or BS	Continuous	DG-DC*	1015 & 1048
Low	BS only		Dual Check:	
		Continuous	w/o Vent	1024 & 1032
		Continuous	w/ Vent	1012 & 1022

NOTES:

1. * USC approved containment assemblies are available
2. Degree of Hazard - See Table 1 — Determination of Degree of Hazard.
3. BS means backflow by backsiphonage.
4. BP means backflow by backpressure or superior pressure.
5. Continuous means operating under continuous flow or pressure. This condition usually applies to devices installed inline and may have valves downstream of the device.
6. Non-continuous means operating intermittently not to exceed 12 hours under continuous pressure or flow in a 24-hour period. This condition usually applies to devices which are connected to hose bibbs, hydrants, or faucets which are open to the atmosphere. Valves should not be located downstream of these devices.
7. RPZ means a reduced pressure principal backflow prevention assembly.
8. Pipe applied AVB means an atmospheric vacuum breaker permanently installed in the plumbing or on faucets.
9. Hose bibb AVB means a hose bibb type atmospheric vacuum breaker with a single or with dual checks and a vent. ASSE 1052 is preferred.
10. Wall hydrant w/AVB means a through-the-wall, frostproof self-draining type wall hydrant with AVB attached or built in.
11. PVB means a pressure vacuum breaker.
12. Spill resistant AVB have the same ASSE # as standard, pipe applied AVB.
13. Spill resistant PVB have ASSE # 1056.
14. DG-DC means a double gate-double check valve assembly.
15. Dual Check without a vent means a device composed of two independently acting check valves ("residential dual check" and "beverage dispenser dual check").
16. Double check with a vent means a device composed of two independently acting check valves with an intermediate atmospheric vent ("boiler dual check").

Attachment C

MEMORANDUM OF AGREEMENT
between the
Board of Housing and Community Development
and the
Virginia Department of Health

In accordance with Section 36-97 "et seq." Code of Virginia, the Virginia Department of Health (hereafter referred to as the "Department") and the Board of Housing and Community Development (hereafter referred to as the "BHCD") on this June 28, 2002, agrees to coordinate the Uniform Statewide Building Code (hereafter referred to as the "USBC") and the Virginia Waterworks Regulations (hereafter referred to as the "Regulations"). The parties agree to the following:

1. That adoption and promulgation of the USBC is the responsibility of the BHCD; that enforcement of the USBC is the responsibility of the local building department; and that adoption, promulgation and enforcement of the Regulations is the responsibility of the Department.

2. That the jurisdiction of the USBC includes all buildings and structures and their internal service plumbing, up to the point of connection to the water meter; and that the jurisdiction of the Regulations includes the meter, all public water supply transmission mains, treatment facilities, and raw water collection and transmission facilities. Where no meter is installed, the point of demarcation between the jurisdiction of the USBC and of the Regulations is the point of connection to the public water supply main; or, in the case of an owner of both public water supply system and the building served, the point of demarcation is the point of entry into the building;

3. That both the USBC and the Regulations will include a clear reference to jurisdiction of the other document.

4. That the Regulations will require each waterworks owner to have a cross-connection prevention program consistent with the Regulations. The regulations will require, as a minimum, a containment device at each service connection where a health, pollution or system hazard to the waterworks exists. It is recognized that in lieu of such containment devices, point of use devices shall comply with the provisions of the USBC. Point of use devices approved by the waterworks owner/Department shall be deemed to be in compliance with the USBC.

5. That wherever public water supply and/or water treatment equipment or facilities are located in a building or structure, the Regulations apply to all such equipment and the USBC applies to the structure and all of its incidental utilities (i.e. heating, electrical, house plumbing, etc.).

6. That the building official is required by the USBC to be assured that the water supply to a building is safe and of adequate capacity before issuing a building permit. Building permits involving a new water connection or extension of an existing connection to a public water supply main shall not be issued when the Department has notified the building official in writing that the water supply system is at or above its permitted capacity.

7. That appropriate amendments, additions, or deletions will be made to the Regulations and to the USBC to insure that there is no jurisdictional conflict between the two documents.

8. That it is the intention of both the BHCD and the Department to cooperate with each other in resolving any technical conflicts between the Regulations and the USBC, and in developing and implementing operational procedures to insure and promote a constructive working relationship between building and health officials.

9. That, except in matters of imminent danger to pubic health or safety, whenever conflicts or disagreements arise between the two agencies or their staffs, all appropriate regulatory procedures will be exhausted prior to any judicial action.

10. This Agreement may be amended or terminated by mutual consent of the parties.

The undersigned agree to the conditions of this Agreement.

William C. Shelton
Director, Department of Housing and
Community Development
for the Board of Housing and
Community Development

Dr. Robert B. Stroube
State Health Commissioner,
Virginia Department of Health