

CHAPTER 50. ELKIN AREA WATER SYSTEM; CROSS CONNECTION, BACKFLOW, AND BACK-SIPHONAGE CONTROL

Section

- 50.01 Intent, Purpose and Control
- 50.02 Responsibilities and Enforcement
- 50.03 Definitions
- 50.04 Regulations
- 50.05 Facilities Requiring Protection
- 50.06 Fines and Penalties

§50.01 TITLE AND PURPOSE

- (A) Title. This chapter recognizes that there are varying degrees of hazards to potable water within the water main and water supply systems of the Elkin Area Water System.
- (B) Purpose. The purpose of this chapter is to:
- (1) to protect the public potable water supply of the Elkin Area Water System against actual or potential cross-connections, backflow, and back-siphonage by isolating within the premises or private property contamination or pollution that has occurred or may occur because of some undiscovered or unauthorized cross-connection on the premises or private property.
 - (2) to eliminate cross-connection, backflow, or back-siphonage or any other source of water or process water used for any purpose whatsoever which jeopardizes the safety of the public potable water supply of the Elkin Area Water System.
 - (3) to establish a cross-connection, backflow, or siphonage control program.
- (C) Cross-connections, backflow, and back-siphonage control require cooperation between Surry County and the consumer. The responsibilities and duties of each shall be as set forth in this section and other applicable regulations.

§50.02 RESPONSIBILITIES AND ENFORCEMENT

- (A) Surry County is primarily responsible for the prevention of contamination and pollution of the public water system. Such responsibility begins at the point of origin of the public water supply and includes all the public water supply and all the public water distribution system and ends at the service connection to the consumer's water system. In addition, the department shall exercise reasonable vigilance to ensure that the customer has taken proper steps to protect the public potable water system. When it is determined that a backflow prevention device is required for the protection of the public system of Surry County, the department shall require the consumer, at the consumer's expense, to install an approved backflow prevention device on each service connection. A backflow prevention device is required on all new non-residential service connections and any existing service connection where a plumbing permit is issued for improvements.
- (B) The consumer has the prime responsibility of preventing contaminants and pollutants from entering the potable water system or the public water system at his service connection. The consumer, at his own expense, shall install, operate,

and maintain an approved backflow prevention device on the service connection as directed by Surry County. Test, maintenance, and repairs of the backflow devices shall be made by a Surry County approved certified tester.

(C) Enforcement of this section shall be administered by Surry County utilizing County staff.

§50.03 DEFINITIONS

AIR-GAP SEPARATION. The unobstructed vertical distance through which the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the flood level rim of the receptacle. An approved air-gap separation shall be at least double the diameter of the supply pipe measured vertically above the top rim of the vessel. In no case, shall the gap be less than four (4) inches.

APPROVED. The term “approved” as used herein in reference to a water supply system or backflow prevention device (or method) shall mean one that has been approved by the County.

BACKFLOW PREVENTION DEVICE. Any effective device, method, or construction used to prevent backflow into potable water system.

BACK-PRESSURE BACKFLOW. Backflow caused by a pump, elevated tank, boiler, or other means that could create pressure within the system greater than the supply pressure.

BACK-SIPHONAGE BACKFLOW: A reversal of the normal direction of flow in the pipeline due to negative pressure (vacuum) being created in the supply line with the backflow source subject to atmospheric pressure.

CHECK VALVE, APPROVED; The term “approved check valve” shall mean a check valve that is drip tight in the normal direction of flow when the inlet pressure is one psi and the outlet pressure is zero. The closer element (e.g. clapper) shall be internally weighted or otherwise internally loaded to promote rapid and positive closure.

CONSUMER. Any person, firm or corporation using or receiving water from the Elkin Area Water System.

CONTAMINATION. An impairment of the quality of water by sewage or industrial fluids or waste to a degree which creates an actual hazard to the public health through poisoning or through the spread of disease.

CROSS-CONNECTION: Any actual or potential connection or structural arrangement between a public or a consumer’s potable water system and any other source or system through which it is possible to introduce into any part of the potable system any used water, industrial fluid, gas or substance other than the intended potable water with which

the system is supplied. Bypass arrangements, jumper connections, removable sections, swivel or changeover devices and other temporary or permanent devices through which or because of which backflow can or may occur are considered to be cross-connections.

CROSS CONNECTION, POINT OF. The term “point of cross-connection” shall mean the specific point or location in a public or a consumer’s potable water system where a cross-connection exists.

DOUBLE CHECK VALVE ASSEMBLY. An assembly composed of two (2) single, independently acting, approved check valves, including tightly closing shutoff valves located at each end of the assembly and suitable connections for testing the water tightness of each check valve.

HAZARD, DEGREE OF. The term “degree of hazard” shall be derived from the evaluation of a health, system, plumbing, or pollution hazard.

HAZARD, HEALTH. The term “health hazard” shall mean an actual or potential threat of contamination or pollution of a physical or toxic nature to the public potable water system or the consumer’s potable water system to such a degree or intensity that there would be a danger to health.

HAZARD, PLUMBING. The term “hazard plumbing” shall mean a plumbing-type cross connection in a consumer’s potable water system that has not been properly protected by a vacuum breaker, air-gap separation, or other device. Unprotected plumbing-type cross-connections are considered to be a health hazard. They include, but are not limited to, cross-connections to toilets, sinks, lavatories, wash trays, domestic washing machines and lawn sprinkling systems. Plumbing-type cross-connections can be located in many types of structures, including, homes, apartment houses, hotels, and commercial and industrial establishments.

HAZARD, POLLUTION. The term “hazard pollution” shall mean an actual or potential threat to the physical properties of the water system or the potability of the public or consumer’s potable water system but which would not constitute a health or system hazard, as defined. The maximum degree or intensity of pollution to which the potable water system could be degraded under this definition would cause a nuisance or be aesthetically objectionable or could cause minor damage to the system or its appurtenances.

HAZARD, SYSTEM. The term “system hazard” shall mean an actual or potential threat of severe danger to the physical properties of the public or the consumer’s potable water system or of a pollution or contamination which would have a protracted effect on the quality of the potable water system.

INDUSTRIAL, FLUIDS. The term “Industrial fluids” shall mean any fluid or solution

which may be chemically, biologically, or otherwise contaminated or polluted in a form or concentration such as would constitute a health system, pollution, or plumbing hazard if introduced into an approved water supply.

INDUSTRIAL PIPING SYSTEM, CONSUMER. The term “consumer’s industrial piping system” shall mean any system used by the consumer for transmission of or to confine or store any fluid, solid, or gaseous substance other than an approved water supply. Such a system would include all pipes, conduits, tanks, receptacles, fixtures, equipment, and appurtenances used to produce, convey, or store substances which are or may be polluted or contaminated.

POLLUTION. “Pollution” shall mean an impairment of the quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic use.

REDUCED-PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICE (RPZ). Device containing within its structure a minimum of two (2) independently acting, approved check valves, together with an automatically operating pressure differential relief valve located between the two (2) check valves. The first check valve reduces the supply pressure by a predetermined amount so that during normal flow and at cessation of normal flow the pressure between the checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to atmosphere, shall operate to maintain the pressure between the checks less the supply pressure. The unit shall include tightly closing shutoff valves located at each end of the device and each device shall be fitted with properly located test cocks.

SERVICE CONNECTION: The terminal end of a service connection from the public potable water system. There should be no unprotected takeoffs from the service line ahead of any meter or backflow prevention device located at the point of delivery to the consumer’s water system.

WATER, POTABLE.: The term “potable water” shall mean water from any source which has been investigated by the health agency having jurisdiction, and which has been approved for human consumption.

WATER SUPPLY, AUXILLARY. The term “auxiliary water supply” shall mean any water supply on or available to the premises other than the Surry County approved public potable water supply. These auxiliary waters may include water from another public potable water supply provider or any natural source such as a well, spring, river, stream, etc., or used waters or industrial fluids. They may be polluted or contaminated or they may be objectionable and constitute an unacceptable water source over which Surry County does not have sanitary control.

WATER SYSTEM, CONSUMER’S. The term “consumer’s water system” shall include

any water system located on the consumer's premises whether supplied by a public potable water system or an auxiliary water supply. The system may be either a potable water system or an industrial piping system.

WATER SYSTEM, CONSUMER'S POTABLE. The term "consumer's potable water system" shall mean that a portion of the privately owned potable water system lying between the service connection and the point of use. This system will include all pipes, conduits, tanks, receptacles, fixtures equipment, and appurtenances used to produce, convey, store or use potable water.

WATER SYSTEM, PUBLIC POTABLE. The term "public potable water system" shall mean any publicly or privately owned water system operated as a public utility under a valid health permit to supply water for domestic purposes. This system will include all sources, facilities, and appurtenances used to produce, convey, treat, or store potable water for public consumption or use.

WATER, USED. The term "used water" shall mean any water supplied by a water purveyor from a public potable water system to a consumer's water system after it has passed through the service connection and is no longer under the control of the purveyor.

§50.04 REGULATIONS

- (A) No water service connections other than single family residence shall be installed or maintained unless the potable water and water supply are protected against actual or potential contamination or pollution in the manner required. Where a residential connection to a city waterline is made, and the property owner continues to have a well or other source of water, it shall be unlawful for the plumbing servicing any building upon such property to be so connected that any water outlet within the building may be served with water from any source other than the County connection, and it shall also be unlawful to have plumbing cross-connected or so installed that water from the city water system or private system may in any way become intermingled.
- (B) In the event of contamination or pollution of a potable water system, the consumer shall notify the department immediately in order that appropriate measures may be taken to overcome the contamination or pollution.
- (C) The County's authorized representative shall have the right to enter any building, structure, or premises to perform any duty imposed upon him by this section where cross-connection, backflow, and back-siphonage are deemed possible.
- (D) Nothing herein shall relieve the consumer of the responsibility for conducting or causing to be conducted periodic surveys of water use practices on his premises to determine whether there are actual or potential cross-connections in the consumer's waste system through which contaminates or pollutants could flow back into the public water system.

- (E) On request, the consumer shall furnish to the department any pertinent information regarding the water supply system on such property where cross-connection, backflow, and back-siphonage are deemed possible.
- (F) Water service may be discontinued after reasonable notice to the consumer if a violation of this section exists on the premises, and such other precautionary measures may be taken as are deemed necessary to eliminate any danger to the potable water system. Water service shall not be restored until the danger has been eliminated in compliance with the provisions of this section.
- (G) Installation of all cross-connection, backflow, and back-siphonage control devices will be approved by Surry County.
- (H) All cross-connection, backflow, and back-siphonage control devices shall meet the testing requirements of the Foundation for Cross-Connection Control and Hydraulic Research and the American Water Works Association.
- (I) All cross-connection, backflow, and back siphonage control devices, both existing and new, and all parts thereof shall be maintained in a safe condition and in good working order. The consumer shall be responsible for the maintenance of all backflow prevention devices downstream from the service connection on the private water system. All backflow prevention devices located at the service connection shall be tested at least one time per year, with the exception of residential irrigation backflow preventers which shall be tested at least one time every two years, or more often in those instances where inspections indicate a need, by a Surry County certified tester. All maintenance and repairs shall be made at the expense of the consumer.
- (J) Test information as required by the County shall be submitted on forms approved by Surry County. If the results are not submitted, a notice will be sent notifying customer that they are in non-compliance. If necessary test and/ or repairs are not completed by the date specified on the notice, the water service may be terminated.
- (K) If multiple consumers are served by one service connection or the service connection cannot be interrupted for testing and/or repairs; a tandem backflow assembly or a bypass with equal backflow protection is required.
- (L) All backflow preventers must be installed in a horizontal position, except those vertical fire line double check backflow preventers approved for installation by Surry County.
- (M) An approved backflow prevention device shall be installed, maintained, and tested at a location to protect the County's potable water system from the consumer's water system, whenever any of the conditions specified in this section

of the policy are present. In all cases, this location shall be between the County's potable water system and the first branch connection or use of the consumer's water system. Unless an exception is granted by the County's designee, the backflow prevention device shall be located at the consumer's property line.

§50.05 FACILITIES REQUIRING CONNECTION

Abbreviations: The following abbreviations have been adopted describing devices and methods used to control cross-connections at the service connection:

R.P.Z (Reduced Pressure Zone Backflow Preventer)
D.C.A. (Double Check Valve Assembly)

(A) Non-residential service connections, with the exception of fire systems: R.P.Z.

(B) Fire Systems

(1) Health hazard exist (chemical, fire pumps, etc.): R.P.Z.

(2) No health hazard: D.C.A.

(3) Building over three stories: R.P.Z.

(C) All irrigation systems: R.P.Z.

(D) Facilities that Require Installation of a Backflow Preventer.

(1) Moderate hazard – D.C.V.A.:

(a) Fire sprinkler systems without booster pump facilities or chemical additives.

(b) Connection to tanks, lines and vessels that handle non-toxic substances.

(c) Most commercial establishments.

(d) Automotive service stations, bakeries and beauty shops with no health hazard and bottling plants with no back pressure.

(2) Severe hazard – R.P.Z. or air gap:

(a) Lawn sprinkler systems with or without chemical injection or booster pump

(b) Wastewater treatment plants

(c) Connection to an unapproved water system or unapproved

auxiliary water supply

(d) Connection to tanks, pumps, lines, steam boilers and vessels that handles sewage, lethal substances toxic or radioactive substances

(e) Fire sprinkler systems with booster pump –facilities or chemical additives

(f) Buildings with five or more stories above ground level

(g) Hospitals and other medical facilities

(h) Morgues, mortuaries and autopsy facilities

(i) Metal plating facilities

(j) Bottling plants (subject to back pressure)

(k) Canneries

(l) Battery manufacturers

(m) Exterminators and lawn care companies

(n) Chemical processing plants

(o) Dairies

(p) Film laboratories

(q) Car wash facilities

(r) Dye works

(s) Laundries

(t) Swimming pools

(u) Water front facilities

(v) Additional uses may be determined by Surry County if not listed in this section.

§50.06 FINES AND PENALTIES

The following actions shall be addressed as a penalty with the related fines.

- (A) Unprotected cross-connection involving a private water system which is a health hazard: \$1,000.00/day
- (B) Unprotected cross-connection involving a private water system which is a plumbing hazard: \$750.00/day.
- (C) Unprotected cross-connection involving a private water system which is a pollution hazard: \$500.00/day.
- (D) Unprotected cross-connection for which no other civil penalty is prescribed: \$250.00/day

Each violation listed below (E thru I) shall be considered a one-time violation subject to the following schedule:

- (E) Falsifying records which are required to be submitted by this ordinance: Tester may be removed from the approved certified tester list and/or \$500.00.
- (F) Submitting incomplete records or failing to submit records which are required by this ordinance: Tester may be removed from the approved certified tester list and/or \$250.00
- (G) Failing to test backflow prevention assemblies as required: \$100.00
- (H) Failing to maintain backflow prevention assemblies as required: \$100.00
- (I) Any other violation of the provisions of this ordinance: \$100.00

Surry County may increase any civil penalty assessed under this section by \$100.00 or (50%) of the maximum civil penalty associated with the violation, whichever is greater, for a second violation of the same provision within a two-year period, Water service may be terminated after a third violation of the same provision within a two-year period. Any person violating any provision of this ordinance shall pay to the County all expenses incurred by the County in repairing any damage to the public water system caused in whole or in part by such violation and any expense incurred by the County in investigating such violation, including reasonable attorney fees. All such expenses are deemed to be part of the civil penalty assessed with the violation.

§50.07 APPROVED ASSEMBLIES, TEST KITS, CONTRACTORS

Surry County shall maintain a list of approved double check detector assemblies, reduce pressure detector assemblies, double check valve assemblies, reduce pressure zone assemblies, test kits, and certified backflow assembly testers.