

DUPLIN COUNTY BACKFLOW PREVENTION ORDINANCE

*Adopted February 2, 2009
Effective March 1, 2009*

ARTICLE 1: INTRODUCTORY PROVISIONS & OBJECTIVES

SECTION 101: TITLE

This ordinance shall be known as the Duplin County Backflow Prevention Ordinance.

SECTION 102: OBJECTIVES

It is the intent of this ordinance to recognize that there are varying degrees of hazards to potable water within the public water system. It is also the intent of this ordinance to insure the degree of protection be the same as the degree of hazard.

SECTION 103: PURPOSE

The purpose of this ordinance is to:

- (1) Protect the Duplin County water supply against actual or potential cross-connections, backflow or back-siphonage by isolating, within the premises or private property, contamination or pollution that has occurred or may occur because of an undiscovered or unauthorized cross-connection on the premises or private property.
- (2) Eliminate or control cross-connections, backflow and back-siphonage or any other source of water or process water used for any purpose whatsoever which may jeopardize the safety of the public potable water supply of Duplin County.

SECTION 104: AUTHORITY

This ordinance is enacted under the Federal Safe Drinking Water Act Amendments of 1986 and under the authority of the General Statutes of North Carolina Chapter 153A, Article 18, Part 2.

ARTICLE 2: DEFINITIONS OF ORDINANCE

SECTION 201. DEFINITIONS

As used in this article, the following terms *shall* have the meanings provided in this section unless the context clearly indicates otherwise.

Air-Gap Separation. An unobstructed vertical distance through the 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 vertical separation *shall* be at least double the diameter of the supply pipe. In no case *shall* the air-gap be less than one (1) inch.

Approved: Certified in writing by the Director as an acceptable device or methodology for the purpose of backflow prevention.

Auxiliary Intake: Any piping connection or other device whereby water *may* be secured from a source other than public water supply.

Backflow: Any flow of water into the public water supply from any other source due to a cross-connection, auxiliary intake, interconnection, back pressure, back siphonage, any combination thereof, or other cause.

Backpressure: Any pressure on any source of water other than the public water supply that may be greater than the pressure on the public water supply and *may* result in a backflow.

Backflow Prevention Device: An approved effective device method used to prevent backflow from occurring in the potable water supply. The type of device required *shall* be based on degree of hazard, existing or potential.

Back-Siphonage: Any circumstance in which the pressure on the public water supply *may* be reduced to the point that the elevation and atmospheric pressure on a source of water other than the public water supply *may* result in a pressure to be greater than the pressure on the public water supply and *may* result in a back flow.

Certified Tester: A person who has proven his/her competency to test, repair, overhaul and make reports on backflow prevention devices as evidenced by certification of successful completion of a training program approved by the Director.

Confinement Device: A backflow prevention device, as approved and required, installed within a private plumbing or distribution system to isolate a localized hazard from the remainder of said system.

Consumer: Any person, firm, or corporation responsible for any property at which water from the Duplin County public water supply is received. In the absence of other parties or the failure of other parties to accept the responsibilities herein set forth, the owner of record *shall* be ultimately responsible. A backflow prevention device as approved installed at the point of separation between the public water supply and a private service or private distribution system or at the point of metering.

Contamination: The presence of any foreign substance (organic, inorganic, radiological, or biological) in water that tends to degrade its quality as to constitute a hazard or impair the usefulness of the water.

Containment Device: A backflow prevention device, as approved and required, installed at the point of separation between the public water supply and a private service or private distribution system or at the point of metering.

Cross-connection: Any physical connection whereby the public water supply is connected with any other water supply system, whether public or private, either inside or outside of any building or buildings, in such a manner that a flow of water into the public water supply is possible either through the manipulation of valves or because of ineffective check or back-pressure valves, or because of any other arrangement.

Cross-Connection Control Coordinator: The official position established and authorized by Duplin County designated by the Director to administer, interpret this section and who *shall* be a certified tester.

Director: The Director of the Duplin County Water Department.

Double Check Valve Backflow Prevention Device: An approved assembly composed of two (2) single, spring-loaded independently operating check valves, including tightly closing shut-off valves located at each end of the assembly, and having suitable connections for testing the watertightness of each check valve.

Dual Check Valve: An approved device containing two (2) independently acting check valves in series.

Fire Line: A system of pipes and equipment used to supply water in an emergency for extinguishing fire.

Interconnection: Any system of piping or other arrangement whereby the public water supply is connected directly with a sewer, drain, conduit, pool, heat exchanger, storage reservoir, or other device which does or *may* contain sewage or other waste or substance which would be capable of imparting contamination to the public water supply.

Pressure Vacuum Breaker: An approved assembly containing an independently operating spring loaded check valve and an independently operating loaded air inlet valve located on the discharge side of the check valve. The assembly must be equipped with suitable connections for testing the proper operation of the device and tightly closing shut-off valves located at each end of the assembly.

Public Water Supply: The water and waterworks system of Duplin County and its customers outside Duplin County limits, for general use and which supply is recognized as the public water supply by the North Carolina Department of Environmental Health and Natural Resources.

Reduced Pressure Zone Principle Backflow Prevention Device (RPZ): An approved device containing within its structure, two (2) spring-loaded independently operating check valves, together with an automatically operating pressure differential relief valve located between the two check valves. The first check valve reduces the supply pressure 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 pressures. 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 less than the supply pressure. This device *shall* have suitable connections for testing the proper operation of the device, including tightly closing shut-off valves located at each end of the device.

ARTICLE 3: COMPLIANCE WITH FEDERAL AND STATE LAW

SECTION 301. Safe Drinking Water Act & NC Building Ordinance

Duplin County will comply with the Federal Safe Drinking Water Act, the North Carolina Drinking Water Act, and North Carolina State Building Ordinance, which pertain to cross-connections, auxiliary intakes and interconnections, and establish an effective ongoing program to control potential sources of contamination of the public water supply.

ARTICLE 4: UNLAWFUL CONNECTIONS

SECTION 401. Violations of Ordinance

It *shall* be unlawful for any person to cause a cross-connection, auxiliary intake or inter-connection to be made; or allow one to exist for any purpose whatsoever.

SECTION 402. Enforcement by Civil & Criminal Penalty

(a) Penalty.

Violation of any provision of this article *may* subject the offender to a civil penalty to be recovered by Duplin County in a civil action in the nature of debt if the offender does not pay the penalty within thirty (30) days after the assessment has become final by exhaustion of the appeal process established by this section, or by failure to appeal the assessment.

The civil penalty for violation of any provision of this cross connection control article *shall* not exceed five hundred dollars (\$500) per day for each day of continuous violation, or a cumulative or single civil penalty of ten thousand dollars (\$10,000). The civil penalty for willful violation of any provision of this article *shall* not exceed one thousand dollars (\$1,000) per day for each day of a continuous violation, or a cumulative or single civil penalty of twenty thousand dollars (\$20,000).

(b) Assessment

Any civil penalty *shall* be assessed by the Director, and *shall* be based upon the reasonable estimated cost of correcting the cited violation, the magnitude of the potential risk posed to the public health, safety and welfare by the violation, and the cost of the public safety or other

emergency response caused by the violation. The Director *shall* serve written notice of the civil penalty assessment on the offender and set out with reasonable care the basis of the amount so assessed.

(c) Equitable Relief.

An appropriate equitable remedy, including a mandatory or prohibitory injunction, issuing from a court of competent jurisdiction may endorse the provisions of this article.

(d) Enforcement Option.

The penalties and enforcement provisions established by this article *may* be applied in addition to or instead of the penalties established by other sections of this ordinance.

(e) Criminal Sanctions.

Any violation of this ordinance shall also subject, upon conviction, to a fine and/or imprisonment pursuant to N.C. Gen. Stat. §14-4.

ARTICLE 5: INSPECTION OF PROPERTY & RIGHT OF ENTRY

Section 501. Inspection of Property.

It *shall* be the duty, upon request of the Director of the cross connection coordinator to cause inspections to be made of properties served by the public water supply where cross-connections with the public water supply are deemed possible. The frequency of inspections and reinspections *shall* be set by the Director.

Section 501. Right of Entry.

The Director or authorized representative, *shall* have the right to enter, at reasonable time, any premises served by a connection to Duplin County public water supply for the purpose of performing the duties of this article. In those cases in which the property owner chooses not to provide such access, the Director or authorized representative, *may* designate the location as a high hazard in accordance with Section 701.

ARTICLE 6: EXISTING CONDITIONS

Section 601. Existing Conditions

Any consumer *shall* be allowed ninety (90) days to correct any cross-connections, auxiliary intakes, interconnections or other hazard as defined by Section 701 of this ordinance in violation of the provisions of this ordinance. The ninety (90) days will be from the date of receipt of the notification given by the Cross Connection Coordinator.

ARTICLE 7: HAZARDOUS USES

Section 701. Hazardous Uses

(a) The following uses *shall* be classified as hazardous uses;

1. Hazardous uses include, but are not limited to: pumps and tanks handling sewage, radioactive, lethal, or toxic substances, boiler and steam connections, sewer waste lines, low inlets to receptacles containing toxic substances, coils or jackets used as heat exchangers, flush valve toilets without vacuum breaks, bacterial and viral materials, private wells or other private water supply, irrigation systems, water systems or hose connections, with booster pumps, carbonation equipment, or similar hazard potential as determined by the cross connection coordinator.

2. Any location at which the nature or mode of operations within a premises are such that frequent alterations are made to the plumbing or at which there is a likelihood in the determination of the Cross Connection Coordinator that protective measures may be subverted, altered, or disconnected.
3. Any facility which contains, but is not limited to, a bottling plant, cannery, building have five (5) or more stories, battery manufacturer, exterminator, greenhouse, chemical processing plant, dairy, dye works, film laboratory, car wash, hospital, commercial laboratory, laundry, metal fabricating operations, mortuary, swimming pool, morgue, x-ray equipment, medical office with laboratory, aspirator, medical washing equipment, packing house, plating plant, poultry house, power plant, nuclear reactor, those fire sprinkler systems equipped with facilities for introduction of freeze preventive chemicals or other substances other than water, dental office, any radioactive material, restaurant, shopping mall with tenant conducting any activity listed in this section and sewage pump or treatment facilities.
 - (b) All installations described in Section 701 of this ordinance *shall* be deemed hazardous uses, and must have a containment device in the form of a reduced pressure zone backflow prevention device provided that, if the consumer demonstrates to the satisfaction of the cross connection coordinator that sufficient internal confinement devices have been installed and tested. The cross connection coordinator may require that the consumer provide engineering drawings sealed by a professional engineer of installations within the premises, which provide complete internal protection against cross-connection as approved by the cross connection coordinator. Any such connection *shall* be considered an other connection for determining the type of containment device required. Each internal confinement device *shall* be one of the following, as approved by the Director or authorized representative: reduced pressure zone principle backflow prevention device, double check valve backflow prevention device, air gap, vacuum break-pressure type, or dual check valve. Each reduced pressure zone principal backflow prevention device serving as an internal confinement device shall have a mesh strainer immediately upstream of the inlet gate valve.
 - (c) No person *shall* fill any tanks or tankers which include the following: those containing pesticides, fertilizers, other toxic chemicals or residues, flush trucks, street sweepers, and nonpotable water tankers from a public water system except with an approved air gap fill or an approved reduced pressure backflow preventor properly installed on the tank or tanker or on the public water supply fill pipeline or hose.

ARTICLE 8: OTHER TYPES OF CONNECTIONS

Section 801. Other Connections

- (a) Services to single family residential units, not otherwise required by this ordinance to have other containment devices, may have a containment device in the form of an approved dual check valve on all such services which meters are applied more than ninety (90) days following the date of adoption of this ordinance, said dual check valves or other containment devices as required *shall* be installed by the owner's representative prior to the installation of the meter by the Duplin County Water Department. On all such services for which meters have been applied prior to that date, said dual check valve shall be installed by the Duplin County Water Department, provided that Duplin County reserves the right to charge the owner or occupant of any residence for the cost of said device and its installation. Maintenance of dual check valve containment devices installed in accordance with this section *shall* be conducted by the Duplin County Water Department. Testable containment devices that are required on lawn irrigation water systems and must be tested every three (3) years by a contractor that has been approved by Duplin County.

- (b) All other connections to the public water supply of Duplin County *shall* have containment devices in the form of a double check valve backflow prevention device as set forth in Section 901 of this ordinance. This *shall* include water mains installed to Duplin County standard, and with Duplin County's supervision, but which are not maintained by Duplin County, including but not limited to manufactured home parks, apartments, group housing projects, and other private distribution systems, or similar hazard potential as determined by the Director or authorized representative. Private distribution systems *shall* be configured so as to provide looped mains, with two (2) or more containment devices on each building water service connection and at dead-end branch mains.

ARTICLE 9: CONTAINMENT DEVICES

Section 901. Installation of Containment Devices

- (a) The containment devices *shall* be located off street right-of-way on the water main side of any plumbing connections. When installed in a building, the device *shall* be located on the service line immediately after its entrance into the building. Each containment and confinement device *shall* be installed in a location that is physically accessible for inspection and testing as determined by the cross-connection coordinator. Containment devices, which have been buried in the ground, do not satisfy the provisions of this ordinance. Each reduced pressure principle zone device shall be installed such that flooding of the device is unlikely as determined by the Cross Connection Coordinator.
- (b) The Director *shall* maintain a list of approved manufacturers and models of hazard containment devices and drawings of standard installation, copies to be made available through the Duplin County Water Department and the Duplin County Building Inspection Office. All reduced pressure zone principle backflow prevention devices and double check valve backflow prevention and all vacuum breaks and dual check valve devices shall be approved by the American Society for Sanitary Engineers. All installations and materials shall conform to Duplin County standards as set by the Director.
- (c) In those cases in which containment and/or confinement devices have been previously installed by prior owners, Duplin County or other parties, the responsibility for maintenance, testing, and replacement as applicable *shall* be with the consumer.
- (d) The cost of said means of containment, and any other plumbing modifications necessary and convenient thereto, and the testing and maintenance thereof is to be paid for by the consumer.

ARTICLE 10: NEW CONSTRUCTION

Section 1001. New Construction

All buildings, proposing to connect to the public water system of Duplin County receiving building permits, on or after the effective date of this ordinance, *shall* be equipped with an approved and tested as properly functioning backflow prevention device(s), as prescribed herein, prior to the issuance of a Certificate of Ordinance Compliance for that building. If a building permit was issued for the building prior to the effective date of the Article, or a building permit was not required, the building *shall* be considered to be an existing building prior to the effective date, in accordance with Section 601 of this ordinance.

ARTICLE 11: NOTICE & CHANGE OF USE

Section 1101. Notification to Consumer

Upon identification of a hazard, or hazard potential, as defined in Sections 701 of this ordinance, the Cross Connection Coordinator, *shall* notify the consumer, of record, of the property on which the hazard exists of the following:

- (a) Location of Hazard
- (b) Nature of Hazard Observed
- (c) Date Hazard Observed
- (d) Section of Ordinance Applicable
- (e) Requirements of Ordinance

Such notification to be made by certified mail, with return receipt requested.

Section 1102. Change in Nature of Use

The Director *shall* be notified by the consumer the nature of use of the property changes so as to change the hazard classification of that property, as set forth in Sections 701 this ordinance.

ARTICLE 12: CONSUMER RESPONSIBILITIES

Section 1201. Consumer Responsibilities

- (a) The consumer *shall*, upon notification, as defined in Section 1101 of this ordinance, install the hazard containment device(s) as required within ninety (90) days from the date of notification
- (b) If, after expiration of ninety (90) days, the containment device(s) has not been installed in conformance with standards set by the Director, in a proper working condition, the Director may discontinue the public water supply service at that premises, and service shall not be restored until such devices have been installed. The Director may permit an extension of up to ninety (90) additional days if compliance efforts are underway and the existence of hardship can be demonstrated.
- (c) Duplin County *shall* bear no liability for direct or consequential damages proximately caused by the discontinuance of service pursuant to this section.
- (d) The consumer shall be responsible for the elimination of or protection against all cross-connections on consumer's property or premises.
- (e) The consumer shall maintain all backflow prevention assembly within its premises in good-working order and good operating condition. The consumer shall correct, at its own cost, any malfunction of the backflow prevention which is revealed by testing.
- (f) The consumer shall immediately notify the Duplin County Water Department if the consumer has reason to believe that backflow has occurred from the consumer's private water system to Duplin County's public water system.

Section 1202. Testing and Maintenance of Devices

- (a) The consumer at each property at which containment and/or confinement device(s) have been installed, shall have each containment and/or confinement device(s) tested on an annual basis, and perform any routine maintenance to such device as recommended by the manufacturer, and provide the cross connection coordinator with a report of that inspection and work.

- (b) The consumer *shall* cause such maintenance, or repairs to be made, rendering the device fully operational.
- (c) Failure of the consumer to perform that testing and maintenance *shall* be cause for the premises to be deemed an immediate public health hazard. The Director *may* immediately thereafter discontinue public water supply service to that premises and service *shall* not be restored until such devices have been rendered operational. Where the use of water is critical to the continuance of normal operations or protection of life, property, or equipment, duplicated containment or confinement devices shall be provided by the property owner to avoid the necessity of discontinuing water service to test or repair the device or devices.

ARTICLE 13: LIMITATION OF LIABILITY

Section 1301. Limitation of Liability

Duplin County *shall* not be held liable, for any cause, for failure to detect any unit failing to operate adequately, or failure to identify any specific hazard, which *may* result in contamination of its public water supply, nor *shall* this ordinance diminish the responsibility of any property owner from whose property a contamination of the public water supply *may* originate.