



# Backflow Prevention for Livestock Watering

Office of Water Quality

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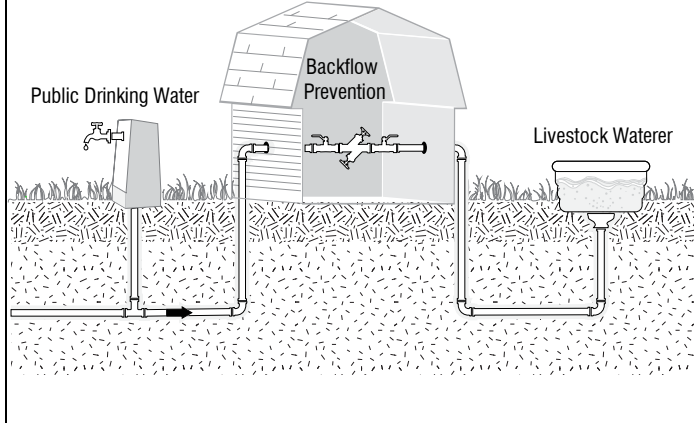
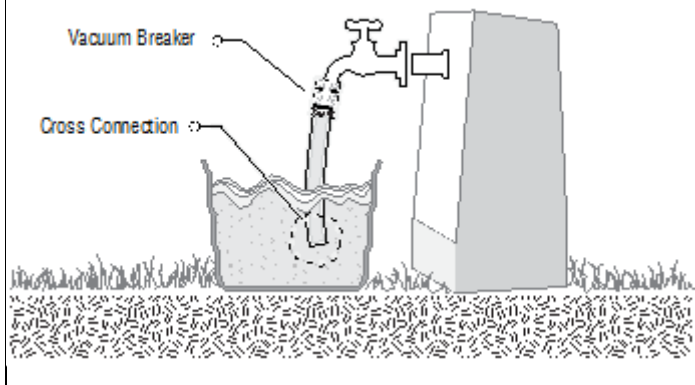
[www.idem.IN.gov](http://www.idem.IN.gov)

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## Introduction:

Fresh, clean drinking water is an essential part of any livestock operation. Sometimes in areas of the state, livestock operations will rely on public water systems for their supply. These connections can present risks to the public water systems. One risk is the possibility of backflow of water that was exposed to livestock use, into the potable water supply system. The purpose of this information sheet is to provide guidance on how to protect the potable water supply from the possibility of livestock operations backflow.

<p style="text-align: center;"><b>About Backflow</b></p> <p>Backflow is what it sounds like –  <b>Water flowing in a direction opposite of its normal flow (reversed flow).</b></p>	<p>Public water systems are designed to keep the water flowing from the water treatment plant to the consumer. The direction of flow can be reversed when normal hydraulic conditions change. A stoppage in the water supply due to nearby firefighting, breaks in the water mains, or an increase in downstream pressure caused by a pump are conditions that can occur in any public supply system and change the direction of flow. These backflow conditions create the potential for contaminated water to enter the drinking water distribution system.</p>
<p style="text-align: center;"><b>How Backflow can Occur</b></p>	<p>In order for contaminated water to enter the drinking water system a <b>cross connection</b> between the potable (drinkable) water supply and any source of nonpotable liquid, solid, or gas that could contaminate drinking water has to exist or have the possibility to occur.</p> <p>Livestock waterers with submerged inlets create a direct cross connection between the public water system and the service water line, creating the potential for exposure to contaminated water.</p> <p>Contaminants such as <i>E. coli</i>, which can cause illness, can enter the public water supply if there is an unprotected cross connection.</p>
<p style="text-align: center;"><b>Requirements for Backflow Prevention</b></p> <p style="text-align: center;"><b>Reduced Pressure Principle Backflow Preventer</b></p>	<p>Due to the risk for exposure, the installation of a testable reduced pressure (RP) principle backflow preventer (commonly referred to as an RP) is required to ensure compliance in accordance with 327 IAC 8-10 and local ordinances. An RP assembly is a device that stops the reversed flow of contaminated water from entering the water supply system. An approved RP is an assembly that meets the requirements of the American Water Works Association standard for reduced pressure principle backflow prevention assembly flow (AWWA C511-17) and an assembly that has been approved by the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California or the Indiana plumbing code.</p>

<p style="text-align: center;"><b>How to Prevent Backflow</b></p> 	<p>By installing the appropriate backflow prevention device, consumers are protected from the contaminated water.</p> <p>The backflow prevention device is to be installed on the property side of and adjacent to the water meter. Additionally, the device must be installed at a location where any leakage from the pressure differential relief valve port will be noticed, and that allows access to the valve for maintenance and testing from floor level, without use of a ladder or other similar temporary apparatus. The device must not be installed below ground grade level and must not be subject to flooding, excessive heat, or freezing.</p> <p>The customer is responsible for the maintenance and annual testing of the backflow prevention device.</p>
<p style="text-align: center;"><b>Other Ways to Prevent Backflow</b></p> 	<p>Cross connections with hoses are probably the most prevalent cause of backflow and contamination of the water system.</p> <p>A hose bib vacuum breaker should be attached to all threaded hose bibs to which a hose can be connected (unless it has a built-in vacuum breaker) to prevent backflow into the water supply.</p> <p>The hose bib vacuum breaker prevents backflow to the water supply by venting water to the atmosphere (onto the ground) when backflow conditions occur. It should be inspected and tested periodically to ensure it is working properly.</p>

**IDEM's Role:**

The Indiana Department of Environmental Management (IDEM) is responsible for implementing federal and state regulations to protect human health and the environment while allowing the environmentally sound operations of industrial, agricultural, commercial, and governmental activities vital to a prosperous economy. IDEM's Office of Water Quality, Drinking Water Branch, regulates, monitors, permits, and licenses drinking water facilities and operators.

**Public Water Systems' Role:**

Public water systems in Indiana are committed to providing safe drinking water to their customers. Part of the process for ensuring that safe drinking water is provided is the identification of various hazards to the safety of the water and then ensuring that control measures are taken to minimize or eliminate those hazards. One risk that exists in most major public water systems is the possibility of backflow of contaminated water into the supply system because of uncontrolled cross connections.

State cross connection and backflow prevention rules at 327 IAC 8-10 dictate that public water systems are responsible for developing and implementing an effective cross connection control program. The rules are available on the Indiana General Assembly's website at [www.IN.gov/legislative/iac/title327.html](http://www.IN.gov/legislative/iac/title327.html).

*This information sheet is intended solely as guidance and does not have the effect of law or represent formal IDEM decisions or final actions. It shall be used in conjunction with applicable rules and statutes. It does not replace applicable rules and statutes, and if it conflicts with these rules and statutes, the rules and statutes shall control.*