

Backflow & Cross Connection Regulation

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Agenda

Section 1: Backflow Regulatory Structure

Section 2: Boilers and Backflow

Section 3: DMWW's Implementation Program

Section 4: Grandfathering



Backflow Regulatory Structure


Safe Drinking Water Act, 42 USC § 300f: Federal drinking water regulation




Iowa Code Ch. 105 & 455B: Adopts State Plumbing Code & Drinking Water Regulation



Iowa Administrative Code r. 641-25.1, et seq.: Iowa Department of Public Health regulations implementing Iowa Code Ch. 105



City of Des Moines Ordinance 26-628: City ordinance implementing IDPH regulation



Board of Water Works Trustees of the City of Des Moines Iowa Rule 506: Implementing Des Moines Ordinance 26-628, IAC 641-25.1 et, seq., Iowa Code Ch. 105

EPA Guidance on SDWA Compliance & Backflow

- ◆ States are responsible for enforcement of drinking water standards, and water utilities are “held responsible for compliance.”
- ◆ Backflow presents potential risk of non-compliance with SDWA’s requirements for finished drinking water
- ◆ EPA, while not directly regulating cross connections, has nevertheless published guidance on risks associated with backflow and cross connections
- ◆ A 2001 report identified 459 incidents of contamination involving backflow, 27 of which involved apartment buildings



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Iowa Code §105.4

- ◆ Requires the board established in the IDPH to establish and adopt a state plumbing code
- ◆ Municipalities with a population of 15,000 or greater must adopt the state plumbing code.
- ◆ The local plumbing code can be **more** restrictive than the state plumbing code, but not **less**.



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IDPH Rules on Backflow: Iowa

Admin. Code r. 641-25.5

- ◆ Cities with populations of 15,000 or greater as determined by the 2010 census or any subsequent regular or special census **shall have a backflow prevention program with containment.**
- ◆ “The administrative authority for this rule is the city council **and its designees**”
- ◆ “Containment is a method of backflow prevention which requires a backflow prevention assembly on certain water services. Containment **requires** that the backflow prevention assembly **be installed on the water service as close to the public water supply main as is practical.**”
- ◆ “Degree of hazard means the rating of a cross connection or a water service which indicates if it has the potential to cause contamination (high hazard) or pollution (low hazard).”



IAC 641-25.5(3): Existing water services, Customer Duty

- ◆ a. Each customer shall survey the activities and processes which receive water from the water service **and shall report to the administrative authority** if cross connections exist and the degree of hazard.
- ◆ b. The administrative authority may inspect the plumbing of any building, property and private water system which has a water service to determine if cross connections exist and the degree of hazard.



IAC 641-25.5(3): Existing Water Services, Consequence of Cross Connection

- ◆ c. If, based on information provided through 25.5(3) “a” and “b,” the administrative authority determines that a water service may contaminate the public water supply, **the administrative authority shall require that the customer install the appropriate backflow prevention assembly for containment.**
- ◆ d. If a customer refuses to install a backflow prevention assembly for containment when it is required by the administrative authority, the administrative authority may order that water service to the customer be discontinued until an appropriate backflow prevention assembly is installed.
- ◆ *Degree of hazard.* Degree of hazard means the rating of a cross connection or a water service which indicates if it has the potential to cause contamination (high hazard) or pollution (low hazard).



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DSM Ordinance: 26-628, Des Moines Plumbing Code

- ◆ *Administrative authority* means Des Moines Water Works and the building official.
- ◆ *Existing water services*. Existing water services shall comply with the following: . . .
 - ◆ b. The water works shall, on the basis of information received from customers or gathered through on-premises investigations or surveys, determine the type of backflow prevention assembly required for containment based on the degree of hazard.
 - ◆ c. Within the timeframe specified in writing by water works, the customer shall install a backflow prevention assembly for containment required by water works.



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DMWW Rules: 506

- ◆ Adopts state plumbing code
- ◆ 506.1.3 **The customer shall** prevent pollutants and contaminants from entering their facility's potable water supply system or the Des Moines Water Works distribution mains **by all means necessary to prevent backflow**
- ◆ 506.1.5 Where harmful contaminants or pollutants are used with any device or process connected to the water system, the customer must install and maintain an approved testable reduced pressure backflow prevention assembly in accordance with these Rules and Regulations and any applicable plumbing code requirements.



Summary of Section 1

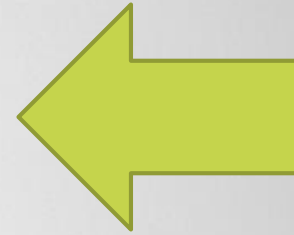
- ◆ SDWA, Iowa Code Ch. 105, 455B, Iowa Admin. Code r. 641-25.5, City of Des Moines Ordinance 26-628, and DMWW Rules Require Backflow Prevention
- ◆ IAC requires customers to report cross connections, and gives DMWW authority to inspect and survey
- ◆ DSM Ordinance requires customers to report cross connections, and gives DMWW authority to inspect and survey
- ◆ If a cross connection may contaminate the public water supply, then a backflow prevention device is mandated



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Section 1: Backflow Regulatory Structure

Section 2: Boilers and Backflow



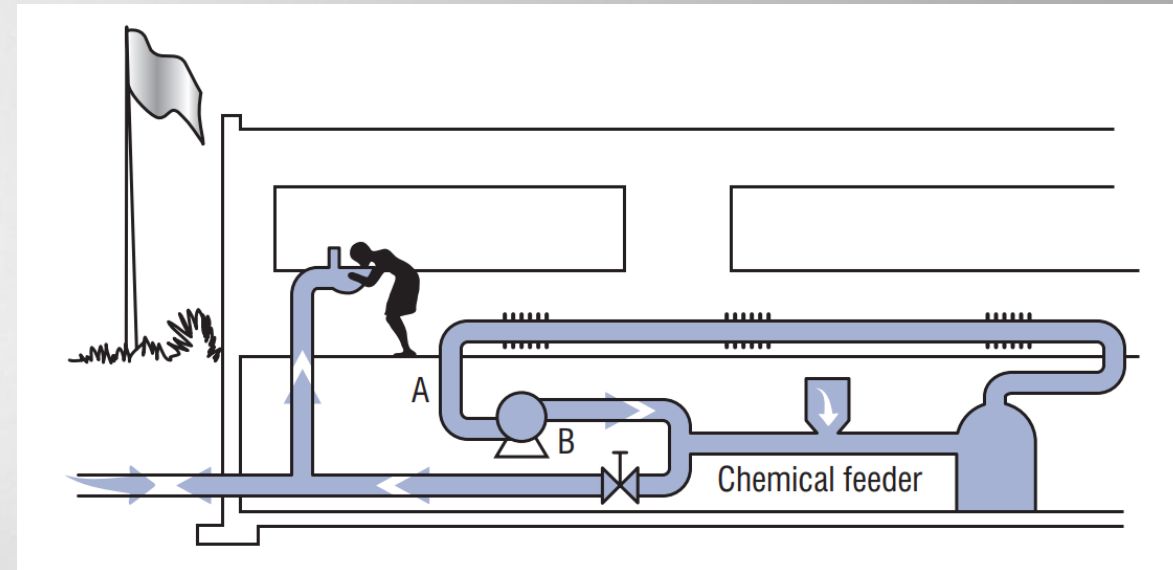
Section 3: DMWW's Implementation Program

Section 4: Grandfathering



Section 2: Boilers and Backflow

- ◆ EPA classifies boilers as a plumbing hazard
- ◆ Chemicals used to treat water can be hazardous
- ◆ Without chemical treatment, corrosion in the boiler system can build up and contaminate water
- ◆ Difficult for DMWW to know the components of boiler system
- ◆ Boilers can have direct connections to the municipal water tap for safety and to fill the boiler
- ◆ Pressure could exceed municipal system pressure, causing backflow
- ◆ Leaky valve could lead to flow back into the system
- ◆ Human error could leave the valve



Why is internal backflow prevention not sufficient?

- ◆ Iowa Admin. Code r. 641-25.5: *Backflow prevention assemblies for containment.*
 - a. Backflow prevention assemblies for containment **shall be installed immediately following the water meter or as close to that location as deemed practical by the administrative authority.**
- ◆ DSM Ordinance 26-628: The water works shall, on the basis of information received from customers or gathered through on-premises investigations or surveys, determine the type of backflow prevention assembly required for containment based on the degree of hazard. *Containment* means a method of backflow prevention which requires the installation of **a backflow prevention assembly at the water service entrance.**



EPA Compliance Recommendations

If the water purveyor elects to protect his customers on a domestic internal protective basis and/or “fixture outlet protective basis,” then cross-connection control protective devices are placed at internal high hazard locations ***This approach entails extensive cross-connective survey work on behalf of the water superintendent*** as well as constant policing of the plumbing within . . . [an] account. In large water supply systems, fixture outlet protection cross-connection control philosophy . . . ***is a virtual impossibility to achieve and police*** due to the quantity of systems involved, the complexity of the plumbing systems . . . , and the fact that many plumbing changes are made . . . that do not require the water department to license or otherwise endorse or ratify when contemplated or completed.

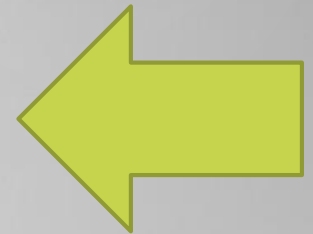


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Section 3: Obligation of Customers & DMWW's Inspection

- ◆ Iowa Admin. Code r. 641-25.5(105) a. Each customer shall survey the activities and processes which receive water from the water service and shall report to the administrative authority if cross connections exist and the degree of hazard.
- ◆ DSM Ordinance 628: The water works shall, on the basis of information received from customers or gathered through on-premises investigations or surveys, determine the type of backflow prevention assembly required for containment based on the degree of hazard.



DMWW's Inspection Program: 506.4.3

The Backflow Program Manager ***shall investigate service provided to existing service lines*** to determine the degree of cross contamination hazard ***that may exist or potentially exist*** and may require customers to provide a Water Usage Inventory to allow evaluation of degree of hazard at any existing service line or may request access to the location served for purposes of inspection of water usage. . . .



DMWW's Inspection Program: 506.4.3

If the Backflow Program Manager finds a high hazard condition ***or other cause to require installation of backflow protection***, the Backflow Program Manager shall order installation of the required backflow protection device or devices and shall give written notice by mail or hand delivery to the customer of such order (the “Installation Notice”).



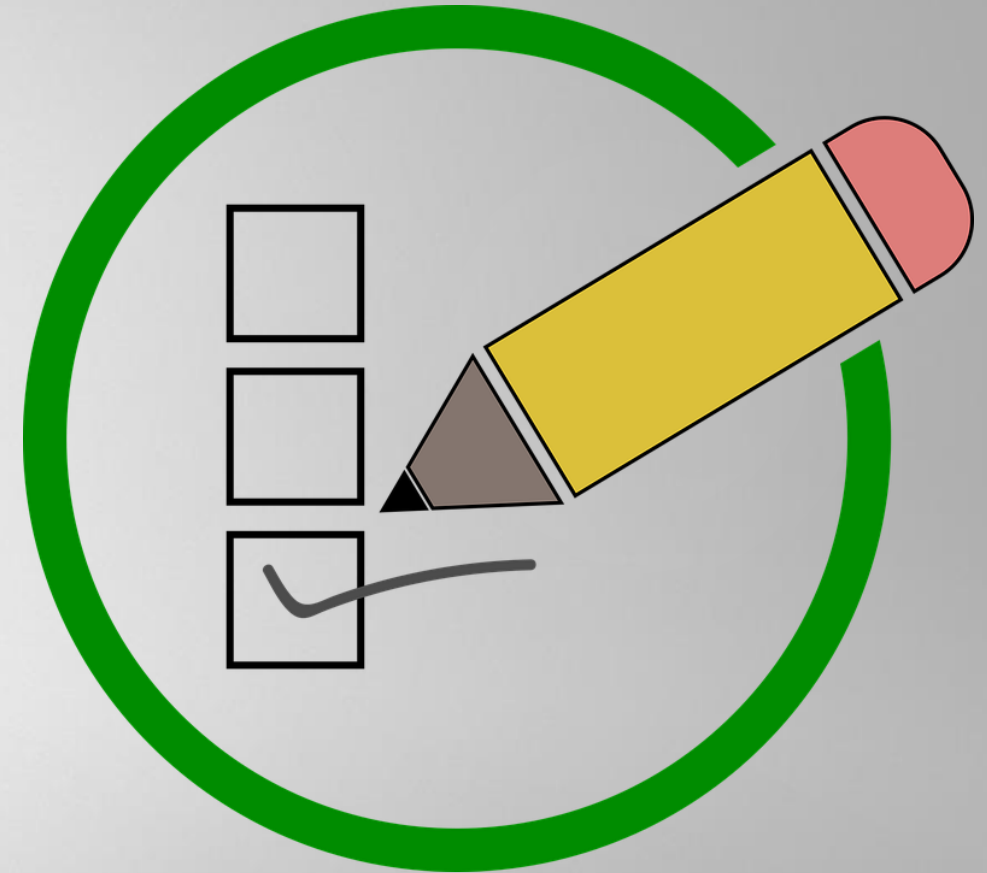
Equal Treatment

- ◆ Every customer is required to report to DMWW the existence of a cross connection by Iowa law
- ◆ DMWW prioritized risks with greatest potential impacts
- ◆ As greatest impacts were addressed, focus expanded
- ◆ Courts will review this decision under a “rational basis” standard, which is a deferential standard to the government
- ◆ The classification scheme is valid “unless the relationship between the classification and the purpose behind it is so weak the **classification must be viewed as arbitrary or capricious**. The government **is not required or expected to produce evidence to justify its action. . . . [T]he plaintiff must negate every reasonable basis upon which the classification may be sustained.**”



DMWW's Inspection Program

- ◆ DMWW Identifies Area for Survey
- ◆ DMWW Sends Surveys
- ◆ Low Response Rate, and Responses Often Incomplete
- ◆ DMWW Conducts Further Inspection



Rules Regarding Exercise of DMWW's Authority

As a general matter, **courts will not overturn local government decisions** on matters within the proper scope of their authority, **absent some very strong showing**. See, e.g., *Perkins v. Bd. of Supervisors of Madison County*, 636 N.W.2d 58, 67 (Iowa 2001) ("The court should not interfere with the zoning decisions of the Board of Supervisors unless there is a clear abuse of discretion"); *Istari Const, Inc. v. City of Muscatine*, 330 N.W.2d 798, 800 (Iowa 1983) ("As a general rule, we are reluctant to interfere with a local government's determination of who is the lowest responsible bidder, absent proof that the determination is **fraudulent, arbitrary, in bad faith, or an abuse of discretion.**") The record in this matter shows that Des Moines Water Works has ample authority to require backflow protection as it has done here.



Rationale for DMWW's Approach

- ◆ Less than unlimited resources
- ◆ Large number of water service customers
- ◆ Difficulties identifying the nature of a particular customer's business
- ◆ Rates of voluntary compliance among certain categories
- ◆ Response rates and quality of responses from customers
- ◆ Change in property use requires re-survey
- ◆ Difficulty in obtaining compliance after cross connection is identified



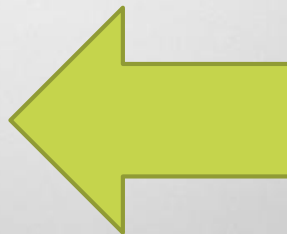
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Section 4: Grandfathering

- ◆ IAC and DSM Ordinance distinguish between existing construction and new construction
- ◆ New construction: requires submission of plans, specs, and other information regarding the water system. IAC 25.5(2)
- ◆ Existing service: requires surveying and reporting in Iowa Admin. Code, DSM Ordinance
- ◆ DMWW Required to investigate existing structures

