

An Introduction To Backflow Prevention Programs



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Today's Talking Points

1. Talk the Talk – Basic Terminology in the Backflow Industry
2. Cross Connection Examples
3. Fundamentals of Backflow
4. Preventing Backflow
5. Testing Requirements
6. *Backflow Programs*

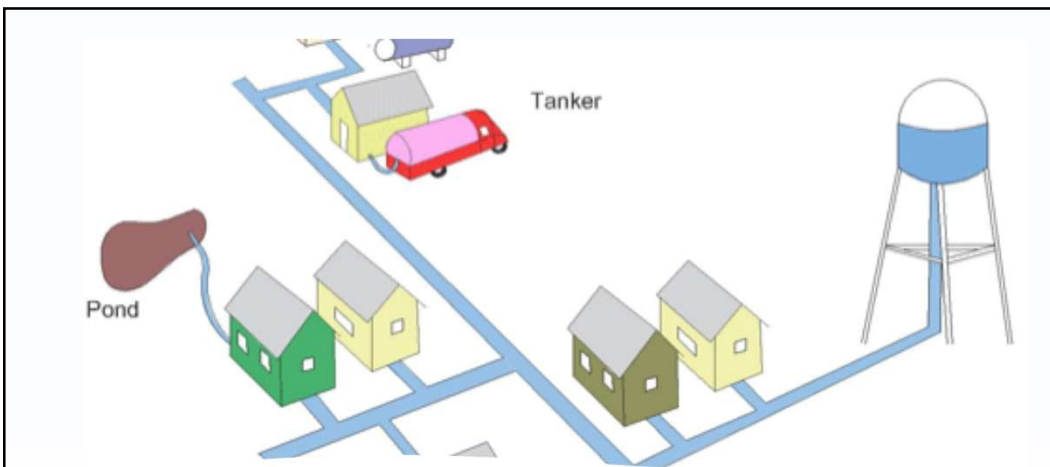
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Cross Connection

Physical connection between the potable water and a non-potable source.

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Backflow

Reversal of flow from the intended direction.

2 Types of Backflow: Backsiphonage
Backpressure

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Backsiphonage

Loss or fluctuations in supply side pressure.

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Backpressure



Increase in customer pressure above supply side pressure.



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Degree of Hazard

Classification of a hazard as either a pollutant (low hazard) or contaminant (high hazard).



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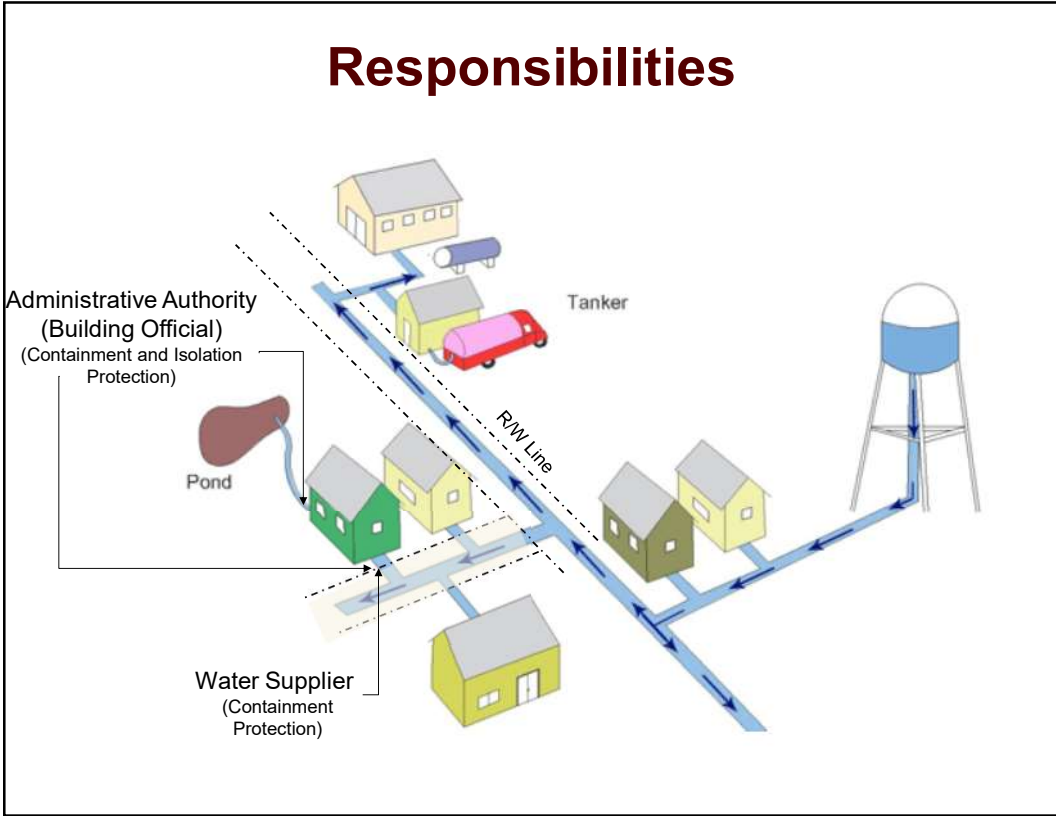
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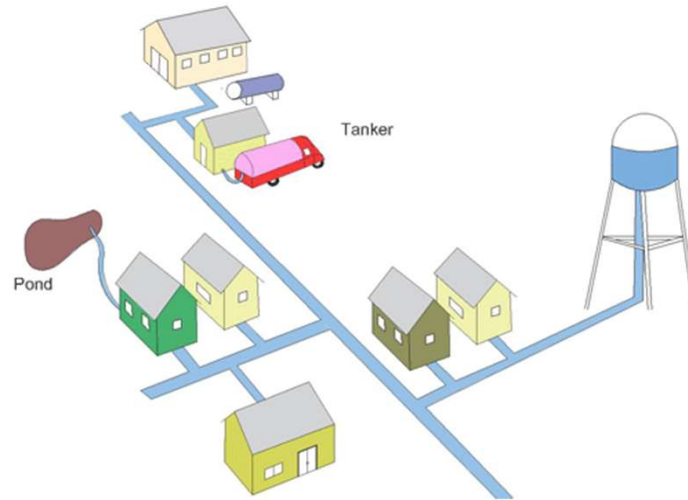


Contaminant (high hazard)

Agents that cause disease, sickness and death. (ex. Car wash, autopsy table)



How Backflow Occurs



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Cross Connection Examples

- Coy Ponds
- Livestock Water Troughs
- Swimming Pools



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Fundamentals of Backflow

Understanding Backflow

Backflow occurs when water moves through a cross connection in the opposite direction it was intended to flow.

This flow reversal is caused by differential pressure.

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Fundamentals
of Backflow

What causes differential pressure?

Changes in:

- Atmospheric Pressure
- Temperature
- Water Velocity
- Mechanical Devices (Pumps)

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Testing Requirements

When should backflow preventers be tested?

Sources: Every plumbing code and state agency!

1. Upon installation
2. When repaired
3. At least annually



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National Tester Certification Organizations

ABPA – American Backflow
Prevention Association

ASSE – American Society of
Sanitary Engineers

AWWA – American Water
Works Association
(Various AWWA chapters)



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20-Years of Backflow Program Observations

1. Comprehensive (and accurate) education is limited.
2. Commitment to backflow programs is token at best.
3. Enforcement is inconsistent across regions.

Statistics (per code)

% of water system service connections
requiring containment protection. **7%**

% of commercial service connections
requiring containment protection. **35%***

* Heavy urban areas could approach 50%

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Backflow Prevention Programs Keys to Success



*How do we achieve success?
... by setting goals!*

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The Importance of Setting Goals

Consider: Purpose of the Program

Goals

1. Protect the Water
2. Minimize Cost Burden to Customer
3. Achieve Regulatory Compliance

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Starting a Backflow Program



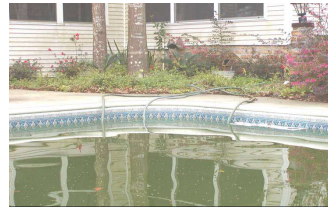
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Backflow Prevention Program Process

1. Get Educated
 2. Implement Written Plan
 3. Select Data Management Application
 4. Review Data
 5. Perform Water Use Surveys and Educate Customers
 6. Document Hazards
 7. Letters to Customers
 8. Install and Test Backflow Preventers
-
9. Repeat 7. and 8. Annually

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Sample Survey Findings



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Record Keeping

- Surveys
- Hazards
- Letters
- Test Results
- Plumber/Tester Compliance

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Record Keeping

Surveying Select Customer from List of Sites

encompass Sites Hazards Surveys Tests Letters More...

More Filters Apply Filters

ID :	PWS :	Status :	Account Number :	Customer Code :	Customer Name :	Customer Name 2 :	Service Address 1 :	Service Address 2 :	Service Apt :	City :	State :	ZIP :
<input type="text"/>	All	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
			<input type="checkbox"/> Include Similar				<input type="checkbox"/> Include Similar					
379355	Demo System #1	Active	520002221	Trailer Park	RAINBOW CREST MOBILE HOME PARK		113 ROAD ST			Sample Town	LA	12345
379356	Demo System #1	Active	225022400	Commercial	RELIABLE HARDWARE SUPPLY		441 MAPLE LOOP			Sample Town	LA	12345
379357	Demo System #1	Active	630000171	Commercial	ALL STAR SPORTS BAR		7777 PARIS RD			Sample Town	LA	12345
379358	Demo System #1	Active	660000975	Commercial	QUICK AND EASY CAR WASH		1100 MAGISTRATE ST			Sample Town	LA	12345
379359	Demo System #1	Active	650000471	Commercial	QUALITY NAILS		8875 HIGHLAND RD			Sample Town	LA	12345
379360	Demo System #1	Active	630000600	Commercial	PRECISION AUTO BODY AND PAINT		142 W 1ST ST			Sample Town	LA	12345
379361	Demo System #1	Active	205015708	Commercial	TRANQUILITY SENIOR LIVING		957 LAKEWOOD DR			Sample Town	LA	12345
379362	Demo System #1	Active	630000060	Commercial	DOE'S DINER		3445 HIGHWAY 18			Sample Town	LA	12345

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Record Keeping

Surveying Add Survey

encompass Sites Hazards Surveys Tests Letters More...

1100 MAGISTRATE ST - Fire (New Survey)

*Survey Type Initial	*Survey Date 09/29/2023
*Surveyor Demo Surveyor	
*Metered Connection No	Floor Count 1
Site Type Hospital	Site Use Commercial

Notes
Fire Line Survey at Hospital

Tags

Hazard Type : Location : Status :

No data to display

0 total

Add Hazard

Submit Survey

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Record Keeping

Surveying
Conduct the Survey

Sites Hazards Surveys Tests Letters More...

Edit Generate Letter

Site ID: 379358

Account Number	660000975	PWS	Demo System #1	Connection Date	None
Site Use	Commercial	Site Type	Car Wash	Site Status	Active
City	Sample Town	State	LA	ZIP	12345
Service Address 1	1100 MAGISTRATE ST	Service Address 2	None	Service Apt	None
Sequence Route	None	Floor Count	1		
Customer Name	QUICK AND EASY CAR WASH	Customer Name 2	None	Customer Code	Commercial
Mailing City	Sample Town	Mailing State	LA	Mailing ZIP	12345
Mailing Address 1	1122 MAGISTRATE ST	Mailing Address 2	None	Mailing Apt	None
Customer Phone	None	Customer Phone 2	None	Customer Email	None
Meter Number	50671	Meter Size	None	Meter Reading	None
Potable Line Present	Yes	Fire Line Present	No	Irrigation Line Present	No
Due Install	Yes	BP Present	Yes	Next Survey Date	None
				Last Survey Date	Feb 1, 2023

Notes: None Tags: None

Select Service Connection Type

Surveys Hazards BPs

Add Potable Add Fire Add Irrigation

ID :	Service Type :	Survey Type :	Survey Date :	Surveyor :
189565	Potable	Initial	2/1/23	demo

1 total

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Document Hazards

Upon Identifying Hazard (Cross Connection),
ask 2 questions:

Subject to

Backsiphonage Yes No (Answer ALWAYS Yes)

Backpressure Yes No

Degree of Hazard

Pollutant Yes No (Answer ALWAYS Yes)

Contaminant Yes No


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Record Keeping

Add the Hazard

New Hazard

Hazard Details | Geolocation | BPs  Add BP Data for the Hazard

*Hazard Type: Fire Line
*Assembly Type Required: DCDA
Location Description 1: Containment
Location Description 2: Near street in front of facility
Line Size: 10"
Hazard Degree: Pollutant
Regulation: 2021 IPC Louisiana Amended
Pump Present: Yes
Additives Present: No
CC Present: Yes
Auxiliary Water: No
Image: [Choose File] No file chosen

Notes: Fire Line survey. DC present but new regulations require DCDA on ALL unmetred fire lines.
Cancel | Create Hazard

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Record Keeping

Surveying Add Backflow Preventer with Letter Type and Test Due Date

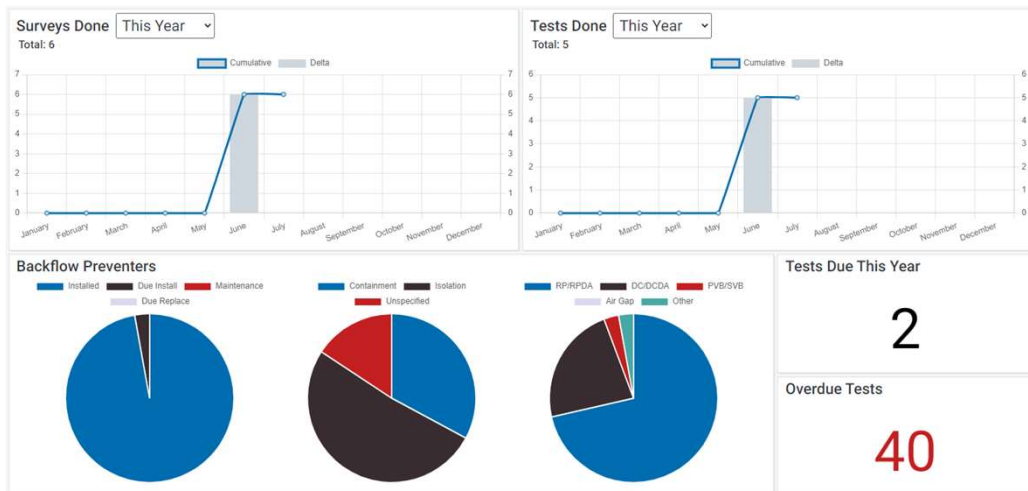
← New BP

*Assembly Type: BC
*Assembly Status: Due Replace
Installed Properly: Yes
Location: Containment
Date Installed: mm/dd/yyyy
Installed By:
Ground Clearance:
Side Clearance:
Orientation:
Size:
Manufacturer:
Model Number:
Serial Number: Not Readable
*Letter Type:
Test Due: mm/dd/yyyy
Image 1: [Choose File] No file chosen
Image 2: [Choose File] No file chosen
Notes:
Back | Create BP

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Regulatory Compliance Documentation

Program Status



Software application should provide status of backflow prevention program.

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Dealing with Non-Compliant Customers



Some customers may take more effort!

Ease their burden when possible.

Empathize

Delay playing the regulation card!

Be aware – customer may be unhappy with another department.

Shut off water as last resort ... but be firm.

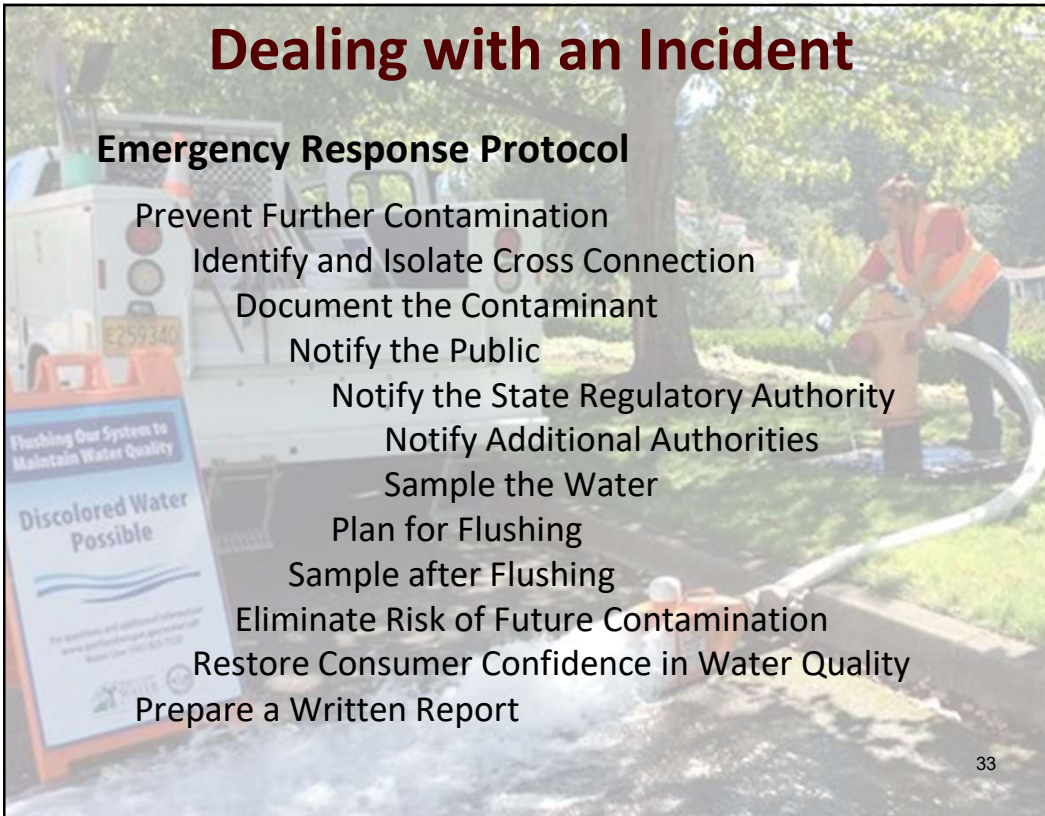
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Dealing with an Incident

Emergency Response Protocol

- Prevent Further Contamination
- Identify and Isolate Cross Connection
- Document the Contaminant
- Notify the Public
- Notify the State Regulatory Authority
- Notify Additional Authorities
- Sample the Water
- Plan for Flushing
- Sample after Flushing
- Eliminate Risk of Future Contamination
- Restore Consumer Confidence in Water Quality
- Prepare a Written Report



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WATER

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