How Technology Helps Utilities Improve Backflow Programs

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Benefits to Cross Connection Program

State, County, and Local Requirements

- Regulatory Agencies require water providers to protect against Hazardous cross-connections

Avoid Pollutants/Contaminants

- Can be a serious health threat
- Must be contained

WHAT IF YOU DON’T?

- Could be the next water disaster!
- Susceptible to terrorist attacks
- Outbreaks of disease
Backflow Incidents
Don't let your system be susceptible

1. Colorado School
   - 8 Kids go to hospital
   - Anti-freeze poisoning
   - No backflow device

2. Funeral Home
   - Blood in the water system
   - Using a hydraulic aspirator to drain fluids
   - Connected to water supply with no backflow

3. Burned in the Shower
   - Sodium Hydroxide in water
   - Near-by chemical company
   - Many residents were burned

4. Paraquat
   - Lethal Pesticide
   - Yellow Gushy stuff was coming from people's faucets
   - Pressure reduction in water mains due to pump failure
   - Cost a lot of money
   - Made CBS news
AI – Artificial Intelligence for Water Industry
ChatGPT - [https://chat.openai.com/chat](https://chat.openai.com/chat) - writes anything you tell it to
Magic Eraser – Removes items from pictures
Speech From Text – Type your text and then choose a voice
Thing Translator – Take a picture of something and translate it to a language
Word Tune – Improves on your writing
Using AMI to Identify Backflow

What is AMI?

- Use AMI Endpoints to identify backflow
  - Some endpoints see as low as 1 gallon of backflow
  - Typically, an hourly read interval, so the reading in hour 2 has to be smaller than reading in hour 1

https://www.iotforall.com/use-case/backflow-valve-monitoring
Using Water Meters to Identify Backflow

Protect your most precious resource

Must be Smart Meters or Meters Retrofitted with Smart Registers

- Use Water Meters to identify backflow, doesn’t have to be AMI
- Some meters are programmable for amount of backflow they can identify.
- EX: Some meters can be programmed to see 1, 2, 5, 10, or 30 gal/min of backflow for a time interval of 1, 2, 4, 6, 8, 10, 15, 30 or 60 min.
- Meters store alarms and can be transmitted through any type of meter reading system.
IoT-Enabled Backflow Valve Monitoring

Protect your most precious resource

• Backflow valve monitors built into new BFPD or retrofitted.
• IoT-enabled sensors used to detect backflow valve position.
• Measure water pressure.
• If failure or unexpected pressure readings, devices can shut off water
• Also alerts manager or owner.
• Access to water supply can also be controlled remotely.

Article by Cameron Rapoport
Why Use IoT-Enabled Valve Monitoring

- Eliminate surprise results from annual backflow preventer inspections
- Receive real-time alerts to backflow valve failure or unexpected drops in pressure – allowing you to act instantly to prevent contamination or damage.
- Monitor multiple backflow preventers with one online dashboard and enable access to multiple stakeholders
- Remotely shut off water supply to prevent flooding, even when you’re not on-site

https://www.iotforall.com/use-case/backflow-valve-monitoring
Backflow Management Software

Protect your most precious resource
Typical Water Utility Record Keeping Process

1. Water Utility Generates Letters
2. Sends them to Customers via Mail
3. Customer Schedules Tester
4. Tester Performs Test
5. Tester Submits Test to Utility
Problems with Paperwork

• The wrong form is used
• CAN’T READ
• Form is missing information
• Forms lost in mail or on the fax
• Manual data entry or scans required by the Water Utility
• Data inconsistencies
• Difficult to find test result data
• Annual reports take forever to generate
### Report on Test and Maintenance of Backflow Prevention Device

**For the year:** 2019

#### Details:
- **Location:** Garden City Park Water
- **Manufacturer:** [Not Readable]
- **Model:** [Not Readable]
- **Serial Number:** [Not Readable]

#### Device Information:

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>[Not Readable]</td>
</tr>
<tr>
<td>Model</td>
<td>[Not Readable]</td>
</tr>
</tbody>
</table>

#### Test Information:

<table>
<thead>
<tr>
<th>Daily Test</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure drop across 1st check valve</td>
<td>[Not Readable]</td>
</tr>
</tbody>
</table>

#### Water Information:

<table>
<thead>
<tr>
<th>Water Meter Details</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Meter Number</td>
<td>[Not Readable]</td>
</tr>
</tbody>
</table>

#### Certification:
- **Device Location:** [Not Readable]
- **Date:** [Not Readable]
- **Remarks:** [Not Readable]

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**CAN YOU READ THESE?**
WOW REALLY?
Automate Your Backflow Program with Industry Accepted Software

• Eliminate All Paperwork – Letters and Test Reports
• No More Missing Data or Hard to Read Forms
• Achieve 100% Compliance
• Automated Test Reminders
• Identify Falsified Test Reports
Automate Your Backflow Program with Industry Accepted Software

- Generate Annual Reports
- Reduce/Eliminate Admin Costs for Backflow
- Possibly GENERATE REVENUE!
- Track all Customer Communications
Track Communications History with Customers

EXAMPLE

- Utility has sent multiple notifications.
- Test does not get completed by customer.
- Customer calls because they received a shutoff notice or fine.
- Software allows immediate access to all notifications with Date and Time Stamps.

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• Test does not get completed by customer.
• Customer calls because they received a shutoff notice or fine.
• Software allows immediate access to all notifications with Date and Time Stamps.

Subject: Final Notice - Backflow Prevention Annual Testing Due at: 721 NE 1ST CT
Notice Date: December 30, 2022
Account Number: 999120
VCC Number: DEL1001001
Meter number: 74740490
Service Type: Domestic
Device Information: 1 Wilkins 720-A
Device Location: Inside fence - E. side of house

Test Due Date: 90 days from date of notice

Dear Customer,

Please be advised that your backflow prevention assembly(ies) located at service address above(s) due to be tested as defined in Section 52.82 of the City's Code of Ordinances. Testing must be performed by a certified backflow prevention tester pursuant to Florida Department of Environmental Protection Regulations. Fire service assemblies must be tested by a Florida State Fire Contractor, Class I or II.

Pursuant to Section 52.85 of the City's Code of Ordinances, failure to comply may result in the termination of water service and/or a fine as defined in Section 52.99.

The City of Delray Beach has partnered with VPPC CrossConnects to provide an efficient cross-connection management program. Effective February 1, 2023, all tests and test data must be submitted by your tester using our vendor's mobile application. Your certified tester can download the free mobile application from the Apple App Store, Google Play or online by visiting www.vppccrossconnects.com. Please notify your tester of your VPPC CrossConnects (VCC) number/s.

- Please help us keep your information up to date by going to https://updateutilmydata.com/info/delray and provide your most up to date contact information.

Backflow Tester Registration:
- If you need help setting up your profile after downloading the application, or have any technical questions regarding the software, please call 877-860-VEPO (877-860-8376) for assistance.
- Educational how-to videos can be found at www.vppccrossconnects.com.
- The filing fee is $15 per backflow assembly test report submitted and is paid by the tester.

If you have any questions regarding the above or specific account questions, please call City of Delray Beach Cross Connection Control Coordinator at 561-243-7328 or email hazardreb@mydelraybeach.com.

Sincerely,

Cross Connection Control Coordinator
Cross Connection Control Program Manager FM 703
Benefits to Testers

Automates Redundant Data Entry – Tester Info

Autofill Test Forms

Simplifies the Test Process – No Complex Forms

Tracks Customer Due Dates

Automated Reminder Notifications to Testers

Don’t Have to Track Utility Test Forms

Automatic Test Form Submission
What to Look for in a Backflow Management Software

Protect your most precious resource
Simple to Enter Test Data on Mobile Devices or PC

Backflow Software with Mobile App/Web Portal

Questions, Please Contact VEPO CrossConnex:
877-860-8376
Example Software Utility Dashboard

- Total # of Devices: 6960
- Total Tests Performed: 2907
- Total Tests Passed: 2807
- Non-Compliant: 491

- Change Requests Waiting Approval: 11
- Total Failed: 155
- Not Repaired (Need 2nd Test): 98
- Repaired & Passed: 57
View Device Details

• Track all device details
• Search on individual device or groups of devices
• Export all data when desired
• Automated device data updates
• Generate custom letters for devices or groups of devices
• Assign devices to internal testers for testing
• Plot device locations on a map
• Review Pictures Submitted by Testers
Unauthorized Cross Connection Identified by Picture Submitted by Backflow Tester
Test Forms

- Get Digital Version ofExisting Form
- Forms Should be Customizable
- Forms to be Emailed or Text to Customer
- Pre-Populate Device and Customer Data
- Simple Easy Data Entry for Testers
- Test Forms filled without Data Connection
- Run Custom Reports on all Tests
- Capture, pictures, signatures, gps, bar code
Data Integration to 3rd Party Software

SHARE DATA BETWEEN BACKFLOW AND OTHER SOFTWARE WITHIN THE UTILITY
(3 OPTIONS…)

1. Manual Data Entry – Not really an option
2. File Transfer/Automated File Transfer
3. Applications Programming Interface (API)
How Automated Software Technology Helps Utilities Improve Backflow Programs?

Save Money

Save Time

Full Compliance

The Alternative to Managing Your Cross-Connection Program Manually. Simple, Easy, and Potentially FREE!
THANK YOU