

# Backflow Testers:

## Public and Private

Les O'Brien  
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### Public Testers

These Testers are Employees:

- Of the water purveyor
- At a military base
- At a state owned property (University, College)
- At a city or county owned property
- At a prison
- At a federally owned facility

These Testers only test assemblies that are owned by the facility

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### Private Testers

- Plumbing/Pipefitting Contractors
- Mechanical Contractors
- Fire Protection Contractors
- Lawn Irrigation Contractors
- Small Business

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### Why test properly?



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### Why test properly?

- **Remain on the Approval List**
- **Provide good and honest service to your customers**
- **To generate new customers**
- **To keep your job**
- **Stay out of jail**

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### Improper Testing

- **Drive bys**
- **Gun decking or pencil whipping**
- **Improper test procedures**
- **Test report incomplete**
- **Overcharging the customer**
- **Repairs not needed**
- **Replace instead of repair**

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1. Why do we **need to be aware** of things other than just testing?

Is this the proper assembly for the hazard level of this customer?

Work with the customer to find a convenient time to have the water turned off.

Be aware of the environment – insects, safety, etc.

2. **Training:** Choose an experienced training facility.

Some training facilities may not have certified, experienced instructors.

Does the facility have examples of models of all the manufacturers?

Does the facility have at least one of each type of test kit?

### Backflow Test Kits

UNIVERSITY OF SOUTHERN CALIFORNIA  
Foundation for Cross-Connection Control and Hydraulic Research



**Gages and Manufacturers**  
September, 2007

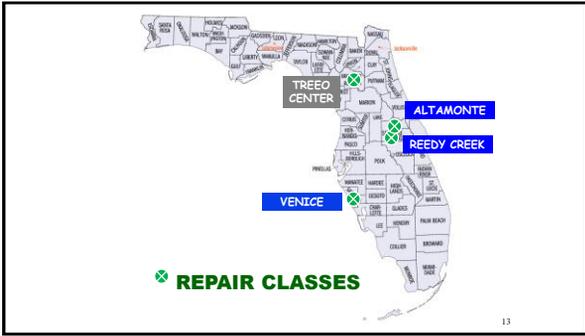
### Backflow Test Kits

- Apollo Valves/Conbraco Industries, Inc.**  
Model 40-200-TKU, 40-200-TKSU
- Astra**  
ProMaster-Model ASRP-4
- Cameron** (Formerly Prime Measurement, ITT Barton)  
Barton- Model 226, 227, 246, 247, 226C, 227C, 246C, 247C
- Danfoss Flomatic Corp**  
Model TK1
- Duke**  
Model 75, 75B, 100, 1000, EZ900

### Backflow Test Kits

- FEBCO**  
Model TK845-5 – replaced with TK-1
- Meriam Instrument**  
Model 1124
- Mid-West Instrument**  
Model 830, 835, 845-3, 845-5, 847
- Watts Regulator Co**  
Model TKDR, TKDP, (TKDL), TK99D
- Zurn/Wilkins Regulator Co**  
Model TG-3, TG-5





### Who needs training?

Who needs training?

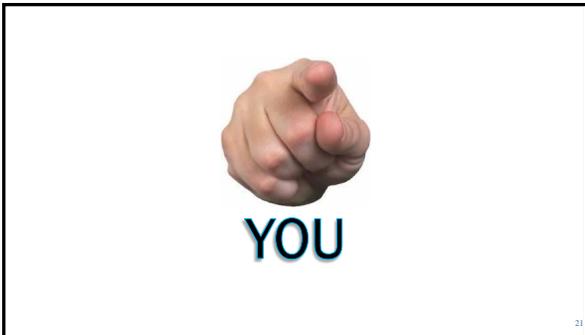
- Construction worker
- Person in blue uniform
- Person at drafting table
- Person at computer
- Person working with tools
- Person at desk

## ENGINEERS

## ARCHITECTS

## CONTRACTORS

## INSPECTORS



3. **Why do we care** about following nationally recognized testing standards?

- You must be able to justify why you choose to use the procedures.
- Some choices are: NEWWA, ASSE, FCCC&HR @ USC, UF-TREEO, NW Pacific AWWA, IAPMO

**Various TEST METHODS**

Florida Administrative Code  
Chapter 62-555.360

**Reference Document:** "Recommended Practices for Backflow Prevention and Cross-Connection Control", AWWA Manual M14 (1990) now 2004

AWWA MANUAL M14,  
4<sup>TH</sup> EDITION

has several suggested  
field test procedures in  
the Appendix

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An appendix is a section at the end of a book which includes supplementary information which may be of interest or use to the reader.

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AWWA Manual M14  
Appendix A, page 85

“Several methods may be used to test backflow prevention assemblies. To insure that test results obtained from certified testers are reliable, standardized testing procedures should be used. The acceptable procedures should be specified by the state or provincial health departments and the water purveyor.”

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AWWA Manual M14  
Appendix A, page 85

“Many test procedures have certain idiosyncrasies that can render the data generated inaccurate.”

“Be sure to review the many different test procedures to determine the one that provides the most accurate data most frequently.”

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AWWA Manual M14  
Appendix A, page 86

“No endorsement by AWWA of the various example test methods is implied .”

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4. **Experience:** Learn from your mistakes and from experienced testers.

- The more field testing experience you have the more efficient you will be
- The repair parts suppliers are a good source of information

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**5. A brief synopsis of Florida's new cross connection control regulations.**

- The changes in residential requirements
  - Test assemblies every two years
  - Change Dual Checks 5 to 10 years
- The new “air gap”

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Remember that the Plumbing Code, Florida Statutes, and DEP Rules are **minimum** requirements.

The Water Purveyor is allowed to impose more stringent requirements

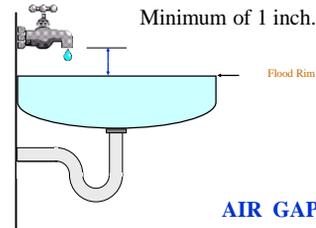
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**Items of Concern**

- Field test existing **residential** assemblies every 2 years. (RP, DCVA, PVB)
- **Replace** Dual Check Valves (DuC) or (RDC) every 5 to 10 years.
  - ...two reduced-pressure principle assemblies installed in series will be considered equal to an air gap. (test every 6 months)
- Well water is to be considered **LOW HAZARD** unless determined otherwise by the CWS

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2 times the I.D. of the supply pipe  
or  
Minimum of 1 inch.



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The New Air Gap

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**CROSS-CONNECTION CONTROL PROGRAM ANNUAL REPORT**

- **Instructions:** Each community water system serving more than 10,000 persons shall complete and submit this report annually. **The first annual report shall cover calendar year 2016, and subsequent annual reports shall cover each calendar year thereafter.**

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**CROSS-CONNECTION CONTROL PROGRAM ANNUAL REPORT**

- I. General Information**
- II. Written Cross-Connection Control Plan**
- III. Inventory of Service Connections, and Inventory of Backflow Protection Being Required at or for Service Connections, at the End of Calendar Year**

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**CROSS-CONNECTION CONTROL PROGRAM ANNUAL REPORT**

- IV. Inspection/Testing of Service Connection Backflow Protection, and Refurbishment /Replacement of Service Connection DuCs, During Calendar Year**
- V. Discovered Cross-Connections**
- VI. Additional Information**

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6. **Ethical behavior:** Building trust takes time, helps to build a positive reputation with our customers and is the "right thing to do"!

- Customers are not always happy about your CCC program. Public education is a good tool for you to use.
- Creating a customer base is easier if you treat your customers fairly.
- Repair is preferred to replacement of the assembly.

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Questions for the Certified Tester

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**Human Being**



**Which R U?**  
A Human Being and more than a regular person?

Or are you an animal...  
Are you the predator or the prey?



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“Real integrity is doing the right thing,  
knowing that nobody’s going to know  
whether you did it or not.”

*Oprah Winfrey*

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Questions for the Water  
Purveyor

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Why do some water purveyors  
mandate additional costs to their  
customers?

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Example: Annual Field Testing

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1. Some water purveyors require  
the buffer value be 3.0 psi or  
above.

If below 3.0 psi they will  
consider the RP assembly as  
failing.

**WRONG!**

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2. Some water purveyors require  
the differential pressure for  
Check Valve #2  
be at least 1.0 psi.

If below 1.0 psi they will  
consider the RP assembly as  
failing.

**WRONG!**

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3. Some water purveyors demand the shut-off valves be leak tight.

They claim if a shut-off valve is leaking then the assembly fails.

**WRONG!**

These three items are not required in order for the assembly to pass.

These demands will unnecessarily increase the cost to your customer.

Some water purveyors require a permit fee for each annual field test.

**REALLY?**

Additionally, some water purveyors require testers to use software that increases the cost of the annual field test.

- What does your CCC Program Require?
- Testers sign Code of Conduct
  - Testers have Business Licenses
  - Testers have Insurance
  - Tagging of Assemblies

- What does your CCC Program Have?
- Regular Meetings
  - Current list of Assemblies
  - Public Education Materials
  - Full Staff or just a Paper Tiger?

Here are a few suggestions  
to help improve your CCC  
program.

- Make an effort to keep your testers well informed.
- Determine if the contractor/tester was well trained.
  - Would you prefer a contractor/tester that has barely passed with a score of 70% on their written exam or a tester who scored a 95%? Both certificates appear the same.

- The water purveyor should retest the new contractors/testers before placing them on the approved list. Future annual field test reports should be checked carefully.
- The CCC supervisor or inspector should meet with the contractors/testers in the field to monitor the field tests and provide guidance.

- A Few More Suggestions
- Require the contractors/testers sign a **Code of Conduct** or Code of Ethics form.
  - Require the contractors/testers **tag** each assembly when it is tested.
  - Require the contractors/testers **submit any parts** replaced during the annual field test.

- Even More Suggestions
- Request all assemblies removed be submitted to your office for evaluation.
    - Note:** Backflow prevention assemblies should not be replaced unless the body is damaged beyond repair. It is usually less expensive to the repair rather than replace the assembly.

Please take the time to insure the private testers / contractors are properly representing your utility company and treating your customers fairly.

## Perception

- Perception is that a person placed on the approved tester list is honest.
- Criminal testers:
- If a tester is dishonest and not removed from the list, perception is that someone at the Water Purveyor is benefiting.

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## Suggested Information you might send to your Customers.

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### SUGGESTED INFORMATION

It is time for your annual field test. This test is required for all approved backflow prevention assemblies.

All of the backflow manufacturers' recommend that the assemblies be tested at least once a year.

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### SUGGESTED INFORMATION

You may receive a list of approved and certified backflow prevention testers from your water company.

Please contact one of the testers on your list. You may want to call several testers and get a quote for the charges.

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### SUGGESTED INFORMATION

If the assembly needs to be repaired the rubber parts repair kits are usually very reasonable.

Often the assembly only needs to be cleaned.

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### SUGGESTED INFORMATION

The annual field test normally takes about 10 minutes. If it needs a cleaning or new rubber repair parts it may take a few minutes more.

Usually the initial test, a good cleaning, replacing any damaged rubber parts, and a final test can be accomplished in one hour for assemblies two inches and smaller.

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SUGGESTED INFORMATION

Nationally, the average cost for residential testing is about \$50.00.

Commercial customers may be slightly more.

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SUGGESTED INFORMATION

These approved backflow prevention assemblies are designed to last from twenty to fifty years.

They should **not** be replaced unless parts are no longer available or if the assembly has sustained damage to the body.

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SUGGESTED INFORMATION

The certified testers can order and receive repair parts with a next day delivery.

Many will have the parts on their truck.

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The reduced pressure backflow prevention assembly (RP) only requires four tests.

1. Check valve #1 must hold tight.
2. The relief valve should open before the gauge drops below 2.0 psi.
3. Check valve #2 must hold tight with backpressure.
4. Check valve #1 should read 5.0 psi or higher on the gauge.

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SUGGESTED INFORMATION

The assembly should be able to be tested even though the outlet shut-off valve has a slight leak.

Most times the assembly simply needs to be cleaned internally.

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SUGGESTED INFORMATION

Remember, these assemblies are designed to be easily repaired. If the tester tells you that the assembly must be replaced ask them to give you the old assembly. After all, it is yours.

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SUGGESTED INFORMATION

You can send the replaced assembly to your CCC Supervisor at the utility company.

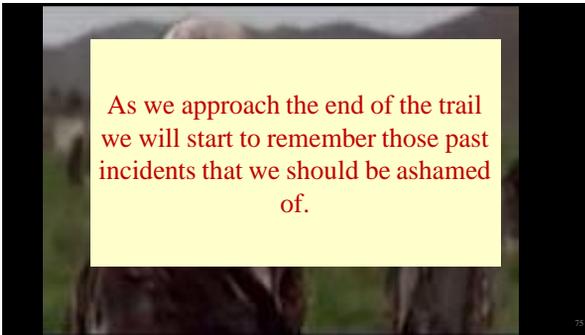
They can study the assembly to see what has caused the failure.

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We all have to look ourselves in the mirror and decide if we're being honest with our customers or is making an extra buck the true purpose of living?

The younger people may not have yet experienced those times of regret. They are coming.

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As we approach the end of the trail we will start to remember those past incidents that we should be ashamed of.

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Believe me they will hunt you!

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What are you doing to improve the CCC Program in your area?

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Thank You

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