# Modified Method 1 Cross Connection Test Procedures

**Circumstances for modified test procedures:**

1. Cannot be used on initial tests
2. Cannot be used on sites with various pressure zones/extreme variations in topography
3. Cannot be used for sites with complex or unknown potable water systems
4. Cannot be used for sensitive sites such as schools and hospitals

**Recycled Water Pressure Differential Test (to be performed first)**

1. Attach a pressure recorder to the number four test cock of the backflow prevention assembly at the recycled water service meter or to an alternative test point such as a test station or quick coupler. Multiple test locations may be utilized depending on the size of the irrigation system and system hydraulics/elevations. Energize the recorder to show an initial pressure recording.
2. Secure the recycled water service meter and depressurize the system. The system should be depressurized to a level significantly lower than the potable system (at least 40%). Open the number 1, 2, or 3 test cock to allow any bleed by from the meter to drip to the ground without re-pressurizing the system. If there is a normally closed master valve on the irrigation system, maintain the master valve in the open position for the duration of the test.
3. Operate the irrigation system through the normal irrigation cycle. Keep the pressure recorder attached for a minimum of 24 hours. The test may be extended beyond 24 hours at the discretion of the water agency. The system is re-pressurized at the end of the test to establish the pressure recorders are still operating correctly.

*Additional notes:*

- Two pressure recorders at each test location are recommended in case a battery runs out of one of the recorders.
- If a pressure increase is observed, the timing, amount of increase observed, and nature of the increase (spike vs slow and steady rise vs increase and plateau) must be evaluated and cause of pressure increase investigated and confirmed. System hydraulics and site conditions at the time of the test must be taken into account. The irrigation system may need to be re-run to attempt to replicate a pressure increase or eliminate a potential cause for the pressure increase.

# Modified Method 1 Cross Connection Test Procedures (continued)

**Potable Water Pressure Differential Test (to be performed after the recycled water test)**

1. Evaluate the potable water system on site to determine the location and number of test points needed.
2. Ensure in-ground isolation valves on the potable water system are in the open position prior to beginning the test.
3. Secure all fixtures on the potable water system that may cause pressure fluctuations affecting the cross-connection test.
4. Isolate buildings through threshold/isolation/shutoff valves if present, and if the testing does not necessitate testing through the building.
5. Attach pressure recorders to all test points. This typically includes the number four test cock of the backflow prevention assembly at the potable service meter but may also include alternative test points. Internal test locations may include hose bibbs, quick couplers, drinking fountains, the #1 and/or #4 test cocks on internal backflow assemblies, or other attachment points. Energize the recorder to show an initial pressure recording.
6. Secure the potable water service meter and depressurize the system. The system should be depressurized to a level significantly lower than the recycled system (at least 40%). Open the number 1, 2, or 3 test cock to allow any bleed by from the meter to drip to the ground without re-pressurizing the system. Wait until pressure is stable prior to starting the irrigation system.
7. Pressurize the recycled water irrigation system and operate each station for a minimum of 2 minutes each. Larger irrigation systems may operate more than one station at a time, provided there is enough pressure to energize each station and allow for visual inspection. Keep the pressure recorder attached for a minimum of one hour, or however long it takes to operate all recycled water irrigation stations, whichever is longer. The system is re-pressurized at the end of the test to establish the pressure recorders are still operating correctly.

*Additional Notes:*

- Two pressure recorders at each test location are recommended in case a battery runs out of one of the recorders.
- If the pressure drops to zero at some point in the test, it will be the responsibility of the agency overseeing the test to make the determination that the test is valid or must be repeated. This determination will depend on several factors, such as the length of the test, when the drop in pressure occurred, the form of the pressure drop, volume of water used to refill the system, and the complexity of the site. A complete and immediate loss of pressure may indicate a system leak that compromises the validity of the test.
- If pressure increases are observed, the reason(s) must be determined. Immediate pressure increases after depressurizing the potable system may require exercising shutoff and isolation valves, and re-starting the test. Backpressure from elevated buildings may need to be relieved to stabilized the pressure. Pressure increases due to thermal expansion within short pipe runs may necessitate shading or repeating the test during a different time of day. The irrigation system should be re-run if a pressure increase is observed while the irrigation stations are operating to attempt to replicate the increase. If a cross-connection is suspected, attempt to isolate the cross-connection within the system.
- TDS levels on existing sites should be confirmed by the water agency to verify the services supplying the site were not inadvertently reversed, provided the recycled water TDS is significantly higher than the potable supply.