PNWS- Test Procedures for Double Check Valve and Double Check Detector Assemblies Using Differential Pressure Gauge

Check Valve No.1 and Check Valve No.2

Performance criteria. Check valves shall be loaded so that when the supply pressure is at least 1.0 psi and the outlet pressure is atmospheric, each check valve shall be drip tight in the normal direction of flow. There shall be no leakage past any check valve when the pressure conditions that cause backflow are present (ANSI/AWWA S510, Sec.4.2)

Test objective, method and reporting requirements. To test either check valve No.1 or check valve No.2 for tightness in the normal direction of flow, determine the static pressure drop across the check valve using a differential pressure gauge kit (Figure A-3)

Both shutoff valve No.1 and shutoff valve No.2 must be closed. For check valve No.1, this test may be made with the differential pressure gauge high-side hose connected only to test cock No.2 and test cock No.3 open (to atmosphere). For check valve No.2, this test may be made with the differential pressure gauge high-side hose connected only to test cock No.3 and test cock No.4 open. For a valid pressure gauge reading, the test kit must be held at the centerline of the assembly *or* at elevation of the test cock No.4 (or test cock No.3 for testing check valve No.1) if the test cock is located on the top of the check valve. After water stops flowing from test cock No.4 and the gauge stabilizes, the differential pressure indicated by the gauge is the static pressure drop across the check valve. The pressure drop must be 1.0 psid or greater.

Record this differential pressure gauge reading on the test report form as the check valve No.1 or check valve No.2 pressure drop and state that check valve held tight in the direction of flow.

It is recommended that check valve No.2 be tested first to prevent entrapped air from giving an inaccurate test of check valve No.1.

The second operating requirement is that there shall be no leakage past any check valve when the pressure conditions that cause backflow are present. It is assumed that if the check valve holds at least 1.0 psi differential in the normal direction of flow, it will hold tight in the reverse direction of flow.

Bypass Meter on DCDA

Performance criteria. The bypass meter shall register any flow that occurs through the assembly (main line *or* bypass). However, it is not necessary that the meter accurately register the flow.

Test objective, method and reporting requirements. Partially open the main line assembly's test cock No.4. Observe bypass meter; meter dial should move to register flow.

In addition, if test cock No.4 of the main-line assembly is located on the bypass piping (rather than on the body of the main-line assembly), close shutoff valve No.2 on the bypass assembly, partially open test cock No.4. If flow continues from test cock, this indicates that bypass connection to the body of the main line assembly is not restricted. *Record on test report that detector meter registered flow.*

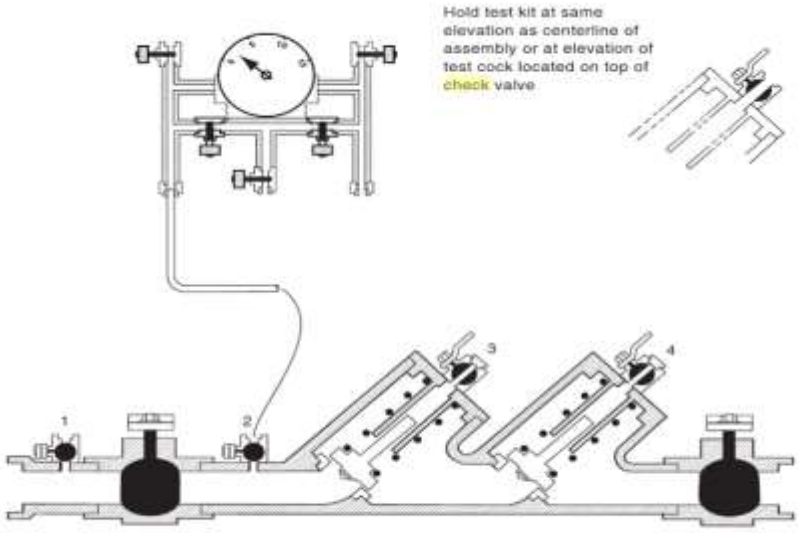

Figure A-3 Illustration of a DCVA test with a differential pressure gauge

Test Procedure for Double Check Valve Assembly (DCVA) Using a Differential Pressure Gauge

Test No. 1

Purpose: To test check valve No.2 for tightness in the normal direction of flow.

Requirement: The check valve shall be loaded so that when the supply pressure is at least 1.0 psi and the outlet pressure is atmospheric, the check valve shall be closed-tight in the normal direction of flow.

Steps:

1. Bleed water through test cocks No.2, No.3, and No.4 to eliminate foreign material
2. Install gauge adapter fittings as necessary.
3. Close shut-off valve No.2
4. Connect high pressure hose to test cock No.3
5. Bleed air through high pressure bleed valve.
6. Close shut-off valve No.1
7. Holding the test kit at the same elevation as the centerline of the backflow assembly or at the elevation of the test cock located on top of the check valve. Open test cock No.4
8. After water stops flowing from test cock No.4 and the gauge stabilizes, the differential pressure indicated is the static pressure drop across the check valve. If the needle drops to zero, the check valve is leaking. The pressure drop must be 1.0 psid or greater.
9. Close all test cocks and remove test hose.

Test No. 2

Purpose: To test check valve No.1 for tightness in the normal direction of flow.

Requirement: The check valve shall be loaded so that when the supply pressure is at least 1.0 psi and the outlet pressure is atmospheric, the check valve shall be closed-tight in the normal direction of flow.

Steps:

1. Re-establish pressure by opening shut-off valve No.1
2. Bleed air from test cocks No.2, No.3 & No.4
3. Connect the high pressure hose to test cock No. 2
4. Bleed air through high pressure bleed valve.
5. Close shut-off valve No. 1
6. Holding the test kit at the same elevation as the centerline of the backflow assembly or at the elevation of the test cock located on top of the check valve. Open test cock No.3
7. After water stops flowing from test cock No.3 and the gauge stabilizes, the differential pressure indicated is the static pressure drop across the check valve. If the needle drops to zero, the check valve is leaking. The pressure drop must be 1.0 psid or greater.
8. After completion of test, record results, close all test cocks, remove test equipment and return assembly shut-off valves to normal operating conditions.