American Society of Sanitary Engineering

PRODUCT (SEAL) LISTING PROGRAM

ASSE STANDARD #1047 - REVISED: 2011

Reduced Pressure Detector Fire Protection Backflow Prevention Assemblies

Separate, complete laboratory evaluation report forms for each alternate orientation much be submitted to ASSE for review.

MANUFACTURER: _____

CONTACT PERSON: _____ **E-MAIL:** _____

ADDRESS: _____

LABORATORY FILE NUMBER: _____

MODEL # TESTED: _____

MODEL SIZE: _____

ADDITIONAL MODELS REPORT APPLIES TO: _____

ADDITIONAL MODEL INFORMATION (i.e. orientation, series, end connections, shut-off valves): _____

- ○ RP
- ○ RPDA
- ○ HORIZONTAL
- ○ VERTICAL FLOW UP
- ○ VERTICAL FLOW DOWN
- ○ OTHER _____

DATE MODELS RECEIVED BY LABORATORY: _____

DATE TESTING BEGAN: _____

DATE TESTING WAS COMPLETED: _____

IF MODELS WERE DAMAGED DURING SHIPMENT, DESCRIBE DAMAGES: _____

PROTOTYPE OR PRODUCTION: _____

General information and instructions for the testing engineer:

The results within this report apply only to the models listed above.

There may be items for which the judgment of the test engineer will be involved. Should there be a question of compliance with that provision of the standard, a conference with the manufacturer should be arranged to enable a satisfactory solution of the question.

Should disagreement persist and compliance remain in question by the test agency, the agency shall, if the product is in compliance with all other requirements of the standard, file a complete report on the questionable items together with the test report, for evaluation by the ASSE Seal Board. The Seal Board will then review and rule on the question of compliance with the intent of the standard then involved.

Documentation of material compliance must be furnished by the manufacturer. The manufacturer shall furnish to the testing agency, a bill of material which clearly identifies the material of each part included in the product construction. This identification must include any standards which relate thereto.

SECTION 1

1.0 General

1.1 Application

Does the purpose of the device agree with that of the standard? ○ Yes ○ No ○ Questionable

If questionable, explain: _____

NOTE: This standard applies to single as well as manifold assemblies.

1.2.1 Description

Does the device conform to the product described in the standard? ○ Yes ○ No ○ Questionable

If questionable, explain: _____

Is the assembly a RPDA or a RPDA-II? ○ RPDA ○ RPDA-II

Identify the by-pass device on this assembly? _____

1.2.2 Size _____inches (_____ mm)

1.2.3 Pressure Range

What is the maximum working pressure of the mainline assembly as stated by the manufacturer?

_____ psi (_____kPa)

What is the maximum working pressure of the by-pass assembly as stated by the manufacturer?

_____ psi (_____kPa)

1.2.4 Temperature Range

What is the temperature range as stated by the manufacturer:

_____ °F to _____ °F (_____ °C to _____ °C)

1.3.2.1 Relief Valve Connections

Indicate shape of discharge port. _____

Can a threaded pipe, a screwed fitting or a tubing be connected internally or externally to the discharge port? ○ Yes ○ No ○ Questionable

If questionable, explain: _____

1.3.2.2 Were female pipe threaded connections so constructed that it would not be possible to run a pipe into them far enough to restrict the flow through the assembly or interfere with working parts? ○ Yes ○ No ○ Questionable

If questionable, explain: _____

1.3.2.3 Is the assembly repairable and seats replaceable without removing the assembly from the line? ○ Yes ○ No ○ Questionable

If questionable, explain: _____

1.3.2.5 Were test cocks properly located? ○ Yes ○ No ○ Questionable

If questionable, explain: _____

1.3.2.6 List the inlet and outlet thread size(s) for the test cocks.

Inlet thread size: _____inches (_____ mm)

Outlet thread size: _____inches (_____ mm)

1.3.2.7 State the manufacturer, size and model number of all shut-off valves tested with the device:
#1 Shut-off: _____
#2 Shut-off: _____
By-Pass Line Shut-off valves: _____

Provide the UL or FM Listing number, or other approval for use in fire protection systems:
_____

1.3.2.8 Was the assembly equipped with an air gap device? ○ Yes ○ No
If yes, did it comply with ASME A112.1.3? ○ Yes ○ No

1.3.3 Was the by-pass line equipped with a water meter or alarm signaling device?
○ Yes ○ No ○ Questionable
If questionable, explain: _____

Is the by-pass a listed product to the ASSE 1013 Standard? ○ Yes ○ No

State the manufacturer's size and model numbers of all meters used: _____
_____

SECTION II

2.0 Test Specimens

2.1 State the quantity of units provided for the evaluation of the orientation requested: _____

2.2 How many units were utilized during the laboratory evaluation?_____

2.3 Drawings
Were assembly drawings, installation drawings and other technical data which are needed to enable a testing agency to determine compliance with this standard submitted with the assembly?
○ Yes ○ No
Were these drawings reviewed by the laboratory? ○ Yes ○ No

Alternate Orientation:
Has an alternate orientation, other than that marked on page 1 of this laboratory evaluation report form been requested? ○ Yes ○ No
If yes, were the required additional samples submitted per Section 2.1? ○ Yes ○ No
NOTE: Separate, complete laboratory evaluation report forms must be submitted for each alternate orientation. The correct number of devices specified in the standard for each intended orientation must be submitted to the testing facility for evaluation to this standard.

2.5 Manifold Device
Is this a manifold assembly type backflow preventer? ○ Yes ○ No
If yes, were the individual devices that constitute the manifold tested to each section of the standard in their intended orientation based on the pipe size for each individual device?
○ Yes ○ No ○ Questionable
If questionable, explain: _____

SECTION III

3.0 Performance Requirements and Compliance Testing

3.1 Independence of Components

How was the independence of components verified?
- ○ Drawing Review
- ○ Physical cycling of components
- ○ Other _____

In Compliance? ○ Yes ○ No ○ Questionable

If questionable, explain: _____

3.2 Hydrostatic Test of Complete Assembly

The assembly was pressurized to: _____ psi (_____ kPa)

The test period was for: _____ minutes

Were there any leaks or indications of damage to the assembly? ○ Yes ○ No ○ Questionable

If questionable, explain: _____

3.3 Seat Leakage Test for Shut-Off Valves

What was the pressure applied to the inlet side of the #1 shut-off valve?

_____ psi (_____ kPa)

How long was the pressure held? _____ minutes

What was the pressure applied to the outlet side of the #1 shut-off valve?

_____ psi (_____ kPa)

How long was the pressure held? _____ minutes

Was the sealing mechanism different between the #1 shut-off valve and the #2 shut-off valve?

○ Yes ○ No

If yes:

What was the pressure applied to the inlet side of the #2 shut-off valve?

_____ psi (_____ kPa)

How long was the pressure held? _____ minutes

What was the pressure applied to the outlet side of the #2 shut-off valve?

_____ psi (_____ kPa)

How long was the pressure held? _____ minutes

Was there any leakage from the shut-off valve(s)? ○ Yes ○ No

3.4 Hydrostatic Backpressure Test of Bypass Check (For RPDA-II only)
(for assemblies with a bypass check around the 2nd check only)

The bypass check was pressurized to: _____ psi (_____ kPa)

The test period was for _____ minutes

Were there any leaks or indications of damage to the bypass check?

○ Yes ○ No ○ Questionable

If questionable, explain: _____

3.5 Hydrostatic Backpressure Test of Checks

What was the pressure applied through test cock #4? _____ psi (_____ kPa)

How long was the pressure held? _____ minutes

Was there any leakage from the relief valve? ○ Yes ○ No

What was the pressure applied through test cock #3? _____ psi (_____ kPa)

How long was the pressure held? _____ minutes

Was there any leakage at the inlet or the #2 test cock? ○ Yes ○ No

3.6 Allowable Pressure Loss at Rated Flow

Was the assembly installed per Figure 1? ○ Yes ○ No

If no, explain: _____

What was the rated water flow for the assembly? _____ GPM (_____ L/s)

What was the supply pressure used for this test? _____ psi (_____ kPa)

What pressure loss through the piping system (if any) was deducted?

_____ psi (_____ kPa)

What was the pressure loss observed at flows of:

GPM	L/s	psi	(kPa)
05.0	0.32	_____	_____
10.0	0.63	_____	_____
15.0	0.95	_____	_____
20.0	1.26	_____	_____
25.0	1.58	_____	_____
30.0	1.89	_____	_____
35.0	2.21	_____	_____
40.0	2.52	_____	_____
45.0	2.84	_____	_____
50.0	3.15	_____	_____

What was the pressure loss at:

150% of Rated Flow _____ psi (_____ kPa)

200% of Rated Flow _____ psi (_____ kPa)

What was the maximum pressure loss observed at flows from (0) GPM to rated flow (both ascending and descending)? _____ psi (_____ kPa)

Was there any discharge from the relief valve during the flow test? ○ Yes ○ No

Did the pressure drop generally increase from static up to a flow of 50.0 GPM (3.15 L/s) with a maximum total downward deviation of 10% from the highest value at any point? ○ Yes ○ No

Was there any damage or permanent deformation of the internal components of the assembly? ○ Yes ○ No

Was the assembly on test in complete compliance with the criteria of Section 3.6? ○ Yes ○ No

3.7 Bypass Flow Detection

When test valve #4 was opened and the flow regulated, record the flow on the flow meter upstream of test valve #4? _____ GPM (_____ L/s)

Was a measuring tank used? ○ Yes ○ No

If yes, record the flow: _____ GPM (_____ L/s)

At what GPM (L/s) did the reading on the flow meter/collection tank exceed the reading on the meter in the bypass line? _____ GPM (_____ L/s)

Did the water meter or alarm device indicate flow at or before 2.0 GPM (0.13 L/s)?
○ Yes ○ No ○ Questionable

If questionable, explain: _____

3.8 Relief Valve Opening Test

Was the assembly installed per Figure 1 with a bypass line with a needle valve and differential gauge between test cock #2 and #3? ○ Yes ○ No

If no, explain: _____

The test system was pressurized to _____ psi (_____ kPa)

When the needle valve was opened to show a decreasing differential pressure, at what pressure did the first drop of water come out of the relief valve? _____ psi (_____ kPa)

When the assembly was returned to a static condition after a small amount of water was flowed through the assembly, what was the differential pressure across the first check?
_____ psi (_____ kPa)

Repeat the test and record the above data when using supply pressures of:

psi	(kPa)	psi	kPa
20	137.9		
30	206.9		
40	275.8		
50	344.8		
60	413.7		
70	482.7		
80	551.6		
90	620.6		
100	689.5		
110	758.5		
120	827.4		
130	896.4		
140	965.3		
150	1034.3		
160	1103.2		
170	1172.2		
180	1241.2		
190	1310.1		
200	1379.1		

At the time of the opening of the relief valve, were all readings 2.0 psi (13.8 kPa) or greater?
○ Yes ○ No

Did the relief valve close drip tight at each pressure segment? ○ Yes ○ No

Was the assembly on test in complete compliance with the criteria of Section 3.8? ○ Yes ○ No

3.9 Sensitivity of Differential Pressure Relief Valve Test

What was the supply pressure used for this test? _____ psi (_____ kPa)

Amount of discharge from the relief valve while opening and closing test cock:
#1 _____ #2 _____ #3 _____ #4 _____

3.10 Drip Tightness of First Check

What was the static pressure differential across the first check for the following line pressures:

psi	(kPa)	psi	kPa
20	137.9	_____	_____
30	206.9	_____	_____
40	275.8	_____	_____
50	344.8	_____	_____
60	413.7	_____	_____
70	482.7	_____	_____
80	551.6	_____	_____
90	620.6	_____	_____
100	689.5	_____	_____
110	758.5	_____	_____
120	827.4	_____	_____
130	896.4	_____	_____
140	965.3	_____	_____
150	1034.3	_____	_____
160	1103.2	_____	_____
170	1172.2	_____	_____
180	1241.2	_____	_____
190	1310.1	_____	_____
200	1379.1	_____	_____

Were these pressure differentials at least 3.0 psi (20.7 kPa) greater than the pressure differential between the inlet line pressure and the zone pressure required to open the relief valve as determined in Section 3.8? ○ Yes ○ No

3.11 Drip Tightness of the Second Check

Indicate the initial height of water in the sight glass at test cock #3: _____ inches (_____ mm)

Indicate the initial height of water in the sight glass at test cock #4: _____ inches (_____ mm)

The test period was for: _____ minutes.
What was the final height difference in the water levels between the sight glasses at test cocks #3 and #4? _____ inches (_____ mm)

3.12 Drip Tightness of Bypass Check (For RPDA-II Assemblies)

What was the initial height of water in the first sight glass in the bypass line?
_____ inches (_____ mm)
What was the initial height of water in the second sight glass in the bypass line?
_____ inches (_____ mm)

What was the final height difference between the sight glasses?_____ inches (_____ mm)

The test period was for: _____ minutes.

In Compliance? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

3.13 Relief Valve Discharge Test with Atmospheric Supply Pressure

What was the rated flow (per table 2) through the relief valve for the size of the device on test? _____ GPM (_____ L/s)

What was the supply pressure? _____ psi (_____kPa)

What was the intermediate chamber pressure? _____ psi (_____kPa)

What was the recorded discharge flow rate from the relief valve? _____ GPM (_____ L/s)

3.14 Relief Valve Discharge With Positive Supply Pressure

What was the rated flow (per table 2) through the relief valve for the size of the device on test? _____ GPM (_____ L/s)

What was the supply pressure? _____ psi (_____kPa)

What was the intermediate chamber pressure? _____ psi (_____kPa)

What was the recorded discharge flow rate from the relief valve? _____ GPM (_____ L/s)

3.15 Backpressure/Backsiphonage Test

Attach test results from USC Protocol for backpressure/backsiphonage testing.

Was there any indication of damage or permanent deformation to the assembly? ○ Yes ○ No

Was there any evidence of water being drawn into the upstream transparent collection tube? ○ Yes ○ No

3.16 Relief Valve vs. Supply Pressure Fluctuation Test

With the assembly in a static condition and the inlet pressure increased from 100 psi (689.5 kPa) to 115 psi (792.9 kPa) record the leakage from the relief valve: _____ GPM (_____ L/s)

When the supply pressure reduced from 115.0 psi (792.9kPa) to 100 psi (689.5 kPa) record the leakage from the relief valve: _____ GPM (_____ L/s)

Was there any discharge from the relief valve? ○ Yes ○ No

3.17 Air Gap Device Backsiphonage Test

(Only applies to Assemblies supplied with an Air Gap device)

Measure and record the quantity of water that is carried over from the air gap into the relief discharge port(s): _____ GPM (_____ L/s)

Was there any evidence of water in the air gap device carrying the over into the relief valve discharge port(s)? ○ Yes ○ No

3.18 Deterioration at Manufacturer's Extremes of Temperature and Pressure Ranges

Temperature range as noted by the manufacturer:

_____ °F to _____ °F (_____ °C to _____ °C)

Maximum rated pressure as noted by the manufacturer: _____ psi (_____kPa)

Water at: _____ °F (_____ °C)
was circulated through the assembly at: _____ psi (_____kPa)
at a flow rate of: _____ GPM (_____ L/s)
for: _____ hours

While still at temperature, the assembly shall be retested to Sections 3.8, 3.10 and 3.11, and 3.12 (If RPDA-II Assemblies):

Retest Section 3.8

Was the assembly installed per Figure 1 with a bypass line with a needle valve and differential gauge between test cock #2 and #3? ○ Yes ○ No
If no, explain: _____

The test system was pressurized to _____ psi (_____kPa)

When the needle valve was opened to show a decreasing differential pressure, at what pressure did the first drop of water come out of the relief valve? _____ psi (_____kPa)

When the assembly was returned to a static condition after a small amount of water was flowed through the assembly, what was the differential pressure across the first check?
_____ psi (_____kPa)

Repeat the test and record the above data when using supply pressures of:

psi	(kPa)	psi	kPa
20	137.9	_____	_____
30	206.9	_____	_____
40	275.8	_____	_____
50	344.8	_____	_____
60	413.7	_____	_____
70	482.7	_____	_____
80	551.6	_____	_____
90	620.6	_____	_____
100	689.5	_____	_____
110	758.5	_____	_____
120	827.4	_____	_____
130	896.4	_____	_____
140	965.3	_____	_____
150	1034.3	_____	_____
160	1103.2	_____	_____
170	1172.2	_____	_____
180	1241.2	_____	_____
190	1310.1	_____	_____
200	1379.1	_____	_____

At the time of the opening of the relief valve, were all readings 2.0 psi (13.8 kPa) or greater?
○ Yes ○ No

Did the relief valve close drip tight at each pressure segment? ○ Yes ○ No

Was the assembly on test in complete compliance with the criteria of Section 3.8?
○ Yes ○ No

Retest Section 3.10

What was the static pressure differential across the first check for the following line pressures:

psi	(kPa)	psi	kPa
20	137.9	_____	_____
30	206.9	_____	_____
40	275.8	_____	_____
50	344.8	_____	_____
60	413.7	_____	_____
70	482.7	_____	_____
80	551.6	_____	_____
90	620.6	_____	_____
100	689.5	_____	_____
110	758.5	_____	_____
120	827.4	_____	_____
130	896.4	_____	_____
140	965.3	_____	_____
150	1034.3	_____	_____
160	1103.2	_____	_____
170	1172.2	_____	_____
180	1241.2	_____	_____
190	1310.1	_____	_____
200	1379.1	_____	_____

Were these pressure differentials at least 3.0 psi (20.7 kPa) greater than the pressure differential between the inlet line pressure and the zone pressure required to open the relief valve as determined in Section 3.8? ○ Yes ○ No

Retest Section 3.11

Indicate the initial height of water in the sight glass at test cock #3: _____ inches (_____ mm)

Indicate the initial height of water in the sight glass at test cock #4: _____ inches (_____ mm)

The test period was for: _____ minutes.

What was the final height difference in the water levels between the sight glasses at test cocks #3 and #4? _____ inches (_____ mm)

Retest Section 3.12

What was the initial height of water in the first sight glass in the bypass line?
_____ inches (_____ mm)

What was the initial height of water in the second sight glass in the bypass line?
_____ inches (_____ mm)

What was the final height difference between the sight glasses?_____ inches (_____ mm)

The test period was for: _____ minutes.

In Compliance? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

3.18 continued

Upon completion of the 100 hours and the retesting of Sections 3.8, 3.10, 3.11 & 3.12 water at: _____ °F (_____ °C) was circulated through the assembly.

Once the assembly reaches ambient temperature, the assembly shall be retested to Sections 3.2 and 3.5:

Retest Section 3.2

The assembly was pressurized to: _____ psi (_____ kPa)
The test period was for: _____ minutes
Were there any leaks or indications of damage to the assembly? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

Retest Section 3.5

What was the pressure applied through test cock #4? _____ psi (_____ kPa)
How long was the pressure held? _____ minutes
Was there any leakage from the relief valve? ○ Yes ○ No

What was the pressure applied through test cock #3? _____ psi (_____ kPa)
How long was the pressure held? _____ minutes
Was there any leakage at the inlet or the #2 test cock? ○ Yes ○ No

3.18 continued

Upon completion of testing at ambient water temperature,
water at: _____ °F (_____ °C)
was circulated through the assembly for: _____hours
and then the assembly was retested to Sections 3.8, 3.10, 3.11 and 3.12:

Retest Section 3.8

Was the assembly installed per Figure 1 with a bypass line with a needle valve and differential gauge between test cock #2 and #3? ○ Yes ○ No
If no, explain:_____
The test system was pressured to _____ psi (_____kPa)

When the needle valve was opened to show a decreasing differential pressure, at what pressure did the first drop of water come out of the relief valve? _____ psi (_____kPa)

When the assembly was returned to a static condition after a small amount of water was flowed through the assembly, what was the differential pressure across the first check?
_____ psi (_____kPa)

Repeat the test and record the above data when using supply pressures of:

psi	(kPa)	psi	kPa
20	137.9	_____	_____
30	206.9	_____	_____
40	275.8	_____	_____
50	344.8	_____	_____
60	413.7	_____	_____

70	482.7	_____	_____
80	551.6	_____	_____
90	620.6	_____	_____
100	689.5	_____	_____
110	758.5	_____	_____
120	827.4	_____	_____
130	896.4	_____	_____
140	965.3	_____	_____
150	1034.3	_____	_____
160	1103.2	_____	_____
170	1172.2	_____	_____
180	1241.2	_____	_____
190	1310.1	_____	_____
200	1379.1	_____	_____

At the time of the opening of the relief valve, were all readings 2.0 psi (13.8 kPa) or greater?
○ Yes ○ No

Did the relief valve close drip tight at each pressure segment? ○ Yes ○ No

Was the assembly on test in complete compliance with the criteria of Section 3.8?
○ Yes ○ No

Retest Section 3.10

What was the static pressure differential across the first check for the following line pressures:

psi	(kPa)	psi	kPa
20	137.9	_____	_____
30	206.9	_____	_____
40	275.8	_____	_____
50	344.8	_____	_____
60	413.7	_____	_____
70	482.7	_____	_____
80	551.6	_____	_____
90	620.6	_____	_____
100	689.5	_____	_____
110	758.5	_____	_____
120	827.4	_____	_____
130	896.4	_____	_____
140	965.3	_____	_____
150	1034.3	_____	_____
160	1103.2	_____	_____
170	1172.2	_____	_____
180	1241.2	_____	_____
190	1310.1	_____	_____
200	1379.1	_____	_____

Were these pressure differentials at least 3.0 psi (20.7 kPa) greater than the pressure differential between the inlet line pressure and the zone pressure required to open the relief valve as determined in Section 3.8? ○ Yes ○ No

Retest Section 3.11

Indicate the initial height of water in the sight glass at test cock #3: _____ inches (_____ mm)

Indicate the initial height of water in the sight glass at test cock #4: _____ inches (_____ mm)

The test period was for: _____ minutes.

What was the final height difference in the water levels between the sight glasses at test cocks #3 and #4? _____ inches (_____ mm)

Retest Section 3.12

What was the initial height of water in the first sight glass in the bypass line? _____ inches (_____ mm)

What was the initial height of water in the second sight glass in the bypass line? _____ inches (_____ mm)

What was the final height difference between the sight glasses?_____ inches (_____ mm)

The test period was for: _____ minutes.

In Compliance? ○ Yes ○ No ○ Questionable

If questionable, explain: _____

3.18 continued

Was the assembly on test in complete compliance with the criteria of Section 3.18? ○ Yes ○ No

3.19 Cycle Test

(a) Flow water at 25% of the rated flow (see Table 1 for size and rated flow)
What was the flow rate? _____ GPM (_____ L/s)
What was the supply pressure? _____ psi (_____kPa)
The test period was for _____ seconds

(b) What was the static pressure? _____ psi (_____kPa)
The test period was for _____ seconds

(c) What was the backpressure (while at static pressure above)? _____ psi (_____kPa)
The test period was for _____ seconds

(d) What was the supply pressure? _____ psi (_____kPa)
The test period was for _____ seconds

(e) The supply pressure was fluctuated from 175.0 psi (1206.7 kPa) down to 100 psi (689.5 kPa) for _____ cycles.

(f) Steps (a) through (e) were repeated _____ times.

Retest assembly to Sections 3.8, 3.10, 3.11 and 3.12:

Retest Section 3.8

Was the assembly installed per Figure 1 with a bypass line with a needle valve and differential gauge between test cock #2 and #3? ○ Yes ○ No

If no, explain: _____

The test system was pressured to _____ psi (_____ kPa)

When the needle valve was opened to show a decreasing differential pressure, at what pressure did the first drop of water come out of the relief valve? _____ psi (_____ kPa)

When the assembly was returned to a static condition after a small amount of water was flowed through the assembly, what was the differential pressure across the first check?

_____ psi (_____ kPa)

Repeat the test and record the above data when using supply pressures of:

psi	(kPa)	psi	kPa
20	137.9	_____	_____
30	206.9	_____	_____
40	275.8	_____	_____
50	344.8	_____	_____
60	413.7	_____	_____
70	482.7	_____	_____
80	551.6	_____	_____
90	620.6	_____	_____
100	689.5	_____	_____
110	758.5	_____	_____
120	827.4	_____	_____
130	896.4	_____	_____
140	965.3	_____	_____
150	1034.3	_____	_____
160	1103.2	_____	_____
170	1172.2	_____	_____
180	1241.2	_____	_____
190	1310.1	_____	_____
200	1379.1	_____	_____

At the time of the opening of the relief valve, were all readings 2.0 psi (13.8 kPa) or greater? ○ Yes ○ No

Did the relief valve close drip tight at each pressure segment? ○ Yes ○ No

Was the assembly on test in complete compliance with the criteria of Section 3.8? ○ Yes ○ No

Retest Section 3.10

What was the static pressure differential across the first check for the following line pressures:

psi	(kPa)	psi	kPa
20	137.9	_____	_____
30	206.9	_____	_____
40	275.8	_____	_____

50	344.8	_____	_____
60	413.7	_____	_____
70	482.7	_____	_____
80	551.6	_____	_____
90	620.6	_____	_____
100	689.5	_____	_____
110	758.5	_____	_____
120	827.4	_____	_____
130	896.4	_____	_____
140	965.3	_____	_____
150	1034.3	_____	_____
160	1103.2	_____	_____
170	1172.2	_____	_____
180	1241.2	_____	_____
190	1310.1	_____	_____
200	1379.1	_____	_____

Were these pressure differentials at least 3.0 psi (20.7 kPa) greater than the pressure differential between the inlet line pressure and the zone pressure required to open the relief valve as determined in Section 3.8? ○ Yes ○ No

Retest Section 3.11

Indicate the initial height of water in the sight glass at test cock #3: _____ inches (_____ mm)
Indicate the initial height of water in the sight glass at test cock #4: _____ inches (_____ mm)

The test period was for: _____ minutes.
What was the final height difference in the water levels between the sight glasses at test cocks #3 and #4? _____ inches (_____ mm)

Retest Section 3.12

What was the initial height of water in the first sight glass in the bypass line?
_____ inches (_____ mm)
What was the initial height of water in the second sight glass in the bypass line?
_____ inches (_____ mm)

What was the final height difference between the sight glasses?_____ inches (_____ mm)

The test period was for: _____ minutes.

In Compliance? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

3.19 continued

(g) With the relief valve open to atmosphere, a backpressure of: _____ psi _____ (kPa) was applied for _____ minutes
Was there any dripping from the vent? ○ Yes ○ No

(h) With the relief valve open to atmosphere, a backpressure of: _____ psi _____ (kPa) was applied for _____ minutes
Was there any dripping from the vent? ○ Yes ○ No

(i) Retest assembly to Sections 3.6:

Retest Section 3.6

Was the assembly installed per Figure 1? ○ Yes ○ No
If no, explain: _____

What was the rated water flow for the assembly? _____ GPM (_____ L/s)
What was the supply pressure used for this test? _____ psi (_____ kPa)

What pressure loss through the piping system (if any) was deducted?
_____ psi (_____ kPa)

What was the pressure loss observed at flows of:

GPM	L/s	psi	(kPa)
05.0	0.32	_____	_____
10.0	0.63	_____	_____
15.0	0.95	_____	_____
20.0	1.26	_____	_____
25.0	1.58	_____	_____
30.0	1.89	_____	_____
35.0	2.21	_____	_____
40.0	2.52	_____	_____
45.0	2.84	_____	_____
50.0	3.15	_____	_____

What was the pressure loss at:
150% of Rated Flow _____ psi (_____ kPa)
200% of Rated Flow _____ psi (_____ kPa)

What was the maximum pressure loss observed at flows from (0) GPM to rated flow (both ascending and descending)? _____ psi (_____ kPa)

Was there any discharge from the relief valve during the flow test? ○ Yes ○ No

Did the pressure drop generally increase from static up to a flow of 50.0 GPM (3.15 L/s) with a maximum total downward deviation of 10% from the highest value at any point? ○ Yes ○ No

Was there any damage or permanent deformation of the internal components of the assembly? ○ Yes ○ No

Was the assembly on test in complete compliance with the criteria of Section 3.6? ○ Yes ○ No

3.19 continued

Was the USC FCCC & HR Life Cycle test protocol used for the cycle test? ○ Yes ○ No
If yes, attach the test results.

Was the assembly on test in complete compliance with the criteria of Section 3.19? ○ Yes ○ No

3.20 Body Strength Test

What was the pressure used for this test? _____ psi (_____ kPa)
The pressure was held for _____ minutes

Was there any structural failure that would cause leakage? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

3.21 Seat Adhesion Test

Did the adhesion test meet all of the requirements of Section 18 of the UL Standard 312?
○ Yes ○ No ○ Questionable
If questionable, explain: _____
Attach those test results.

3.22 High Velocity Test

What was the flow velocity used for this test? _____ ft/sec (_____ m/sec)
This velocity was maintained for _____ minutes

Was there any damage or permanent deformation to any of the internal components of the assembly? ○ Yes ○ No
Did any portion of the assembly become dislodged or restrict flow during this velocity test?
○ Yes ○ No
Was the assembly (or assemblies) used for testing of Sections 3.1 through 3.22 in complete compliance with the criteria of this standard? ○ Yes ○ No

SECTION IV

4.0 Detailed Results

4.1 Materials

Did the manufacturer provide evidence that the materials make-up of the device has been used successfully in similar applications for at least one (1) year? ○ Yes ○ No

4.1.1 Materials in Contact with Water

Did any solder and fluxes in contact with the potable water supply exceed 0.2% lead content?
○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.2 Elastomers and Polymers

Did all of the elastomers and polymers in contact with the water comply with the requirements of the U.S. Code of Federal Regulations (CFR) Title 21, Section 177?
○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.3 Did all ferrous cast parts conform to ASTM A126 for gray iron or ASTM A536 Grade 65-45-12 for ductile iron? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.4 Were all ferrous cast parts in contact with the water flowing through the assembly protected against corrosion by epoxy coating or other equivalent methods? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.5 Were all stainless steel components in contact with water of Series 300 s/s? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.6 Were all non-ferrous wetted parts of a corrosion resistance of at least equal to an alloy of 79% copper? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.7 Were all internal non-cast parts of a corrosion resistance of at least equal to an alloy of 79% copper? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.8 Were all springs in contact with the water flowing through the assembly of a corrosion resistance of at least equal to stainless steel series 300? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.9 Were all flexible non-metallic parts of a design to withstand all the criteria of this standard without change in their physical characteristics? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.10 Were check or relief valve seats of a metal to metal seating? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

Identify seating material:
#1 Check: _____
#2 Check: _____
Relief Valve: _____

4.1.12 Were the seat rings of a corrosion resistance of at least equal to an alloy of 79% copper? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.13 Were the test cocks of a corrosion resistance of at least equal to an alloy of 79% copper. ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.14 Do all pipe flanges conform to ASME B16.24 for bronze flanges and ASTM A126 for cast iron flanges? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.15 Do all pipe threads conform to ASME B1.20.1 for taper pipe threads and ASME B1.20.3 for dryseal? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.1.16 Do inlet and outlet grooved connections comply with AWWA C606? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.2 Marking Instructions

4.2.1 Marking of Devices
Identify and list the markings found on the test assembly:
(a) Manufacturer's name or trademark: _____
(b) Type (RPDA or RPDA-II): _____
(c) Model number of the assembly: _____
(d) Model number of the bypass check or bypass assembly: _____
(e) Maximum rated pressure: _____
(f) Maximum rated temperature: _____

(g) Serial number consistent with the manufacturer's standard practice: _____
(h) Nominal valve size: _____
(i) The direction of water flow: _____
(j) Each shut-off valve shall be marked with the manufacturer's name or trademark and model number: _____

4.2.2 Was marking of the RPDA Bypass Assembly per ASSE 1013? ○ Yes ○ No

4.2.3 Identify and list the markings found on the RPDAII Bypass check:
(a) Name of manufacturer or trademark: _____
(b) Model number of the bypass check: _____
(c) The direction of water flow: _____
(d) Each shut-off valve shall be marked with the manufacturer's name or trademark and model number: _____

4.2.4 Identify and list the markings found on the manifold assemblies:
(a) Manufacturer's name or trademark: _____
(b) Type (RPDA or RPDA-II): _____
(c) Nominal valve size: _____

4.2.5 Describe how these markings were made: _____

4.3 Installation and Maintenance Instructions

4.3.1 Were instructions for installation submitted with the device? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.3.2 Did the installation instructions indicate the tested and approved installation orientation of the assembly? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.3.3 Was the assembly capable of being maintained or repaired while in-line? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.4 Maintenance

4.4 Were maintenance instructions furnished? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

4.5 Field Testing

4.4.4 Were field testing instructions furnished? ○ Yes ○ No ○ Questionable
If questionable, explain: _____

TESTING AGENCY: _____

ADDRESS: _____

PHONE: _____ **FAX:** _____

TEST ENGINEERS: _____

We Certify that the evaluations are based on our best judgements and that the test data recorded is an accurate record of the performance of the device on test.

SIGNATURE OF THE OFFICIAL OF THE AGENCY: _____

TITLE OF THE OFFICIAL: _____ **DATE:** _____

SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER SUPERVISING THE LABORATORY EVALUATION:

SIGNATURE: _____

PE SEAL

*To insert images into document (PE seal and signatures)

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COMMENTS: