10th Edition – Manual Review Committee
Responses to Comments on Section 10 Draft dated 5-2-05

The Manual Review Committee (MRC) met on 15 November 2005 to review all comments received on the draft Section 10 dated 5-2-05. Below are the MRC responses to each of the comments. The responses are keyed (i.e., AV, F MID, etc.) to the comment letters (attached).

Manufacturers	Other Interested Parties
(AV) Apollo Valves (Conbraco)	(BPS) Backflow Prevention Supply
(F) Febco	(PB) Paul Bladdick
(MID) Midwest Instruments	(BH) Bill Hamrick
(WIL) Wilkins	

Apollo Valves (Conbraco)

AV1 – The modification of Section 10.2.2.3.8 – Backsiphonage/Backpressure Test was requested and accepted by the Backflow Prevention Manufacturers Association (BPMA). The new protocol is more objective and will produce more repeatable results, since there is no placement of fouling wires which may shift during testing. The orifice sizes in the new protocol were adopted directly from the existing fouling wire Table 10-6, which was adopted many years ago as a representation of typical fouling particle size.

Conclusion: Non-persuasive - maintain current draft Section 10.2.2.3.8.

AV2 – Staff performed additional research on existing Field Test Kits to determine if the requirements of the subject tests were reasonable. Alternate test parameters were developed for Section 10.4.2.2.6.

Test A – Simulate condition from PVB or SVB field test – High side bleed needle valve open ¼ turn, apply 1 psi to end of high side hose, record flow from high side bleed needle valve. Recommended minimum flow rate of 0.040 gpm.

Test B – Simulate condition from RP field test – High side control needle valve open, low side control needle valve open ¼ turn, apply 1 psi to end of high side hose. Record flow from low side hose. Recommended minimum flow rate of 0.020 gpm.

The updated research was performed with and without in-line filters to determine their impact on the results. It was found that the in-line filters only reduced the flow rate in the order of 2% to 8%. What had a greater impact with the test results was the Schrader valve depressor inserted in the end(s) of the hoses. These reduced the flow rate up to ~30% in some of the tests. It would be recommended that the depressor insert be removed from the ends of the hoses, since it serves no purpose for this application.

Conclusion: MRC adopted replacement Section 10.4.2.2.6

AV3 – Field Test Kit material requirements.

Conclusion: MRC adopted addition of UNS #C36000 to Section 10.3.5

AV4 – see AV2

Febco (SPX Process Equipment)

F1 - Requirement is not in place, so the manufacturers do not have to be in compliance yet.

F2 – Clerical error corrected – missing lines.

F3 – Section 10.2.1.3.c To assist with the location of adequate field test sites, the requirement for flowing field sites has been revised to 50-100% of rated flow. Flow rates are verified with whatever means is available at the field site. Volumetric readings may be taken with on-site water meters, or non-intrusive flow meters (i.e., mag-meters, etc.)

F4- Body strength tests (4-5 times MWWP) have been modified to attach blind flanges to the inlet and outlet of the assembly being tested, rather than closing the shutoff valves. This is consistent with the intent of the test, to test the strength of the body, not the sealing of the shutoff valves at 700 or 875 psi.

Conclusion: Sections 10.2.6.3.5, 10.2.7.3.5, 10.2.9.3.5 and 10.2.10.3.5 have been modified so that the inlet and outlet of the mainline assembly are plugged, and the shutoff valves are open.

Mid-west Instruments

MID1 – see AV2

MID2 – see AV3

MID3 – Section 10.4.1.1 Drawings and Specifications – This section contains the same requirement as the backflow prevention assemblies (i.e., Section 10.2.11) have maintained since 1948 (i.e., Paper No. 5). All materials submitted for evaluation are maintained in confidential files, only accessible to Foundation Staff. The manufacturer is required to provide a specific contact person(s) for all communication purposes, and only that individual(s) may received communications regarding the evaluation status. In order to protect confidentiality and proprietary rights, only the manufacturer and/or its designated representatives shall be permitted to be present at the laboratory to observe testing. Drawings are necessary so that the submitted product can be verified to be in compliance with material and design requirements.

Conclusion: Non-persuasive, maintain current draft Section 10.4.1.1.

MID4 – Section 10.4.1.2 –Verification of materials against engineering drawings, and verification of appropriate markings may be considered design issues. Therefore, the statement *evaluation of its design* is considered to be appropriate in this Section.

Conclusion: Non-persuasive, maintain current draft Section 10.4.1.2.

MID5 & MID6 - Field Test Kits – Section 10.4.2.2.1 - Accuracy Test
MRC discussed this matter in detail, illustrating there are situations where the gage will encounter ascending motions. Conditions such as fluctuating line pressure will cause the reading on the field test kit to move upward; and the field test of a DC requires the field test kit to be lowered to centerline should the water in the sight tube recede, causing an upscale movement of the reading.

The MRC agreed that Laboratory Evaluation of the field test kit must be performed with the medium of its intended application.

It was also stated that some state or local jurisdictions may interpret the Field Test Kit Standard as the requirement for the annual accuracy verifications, unless the recommendation for annual accuracy verification is identified separately in the Manual.

Conclusion - The MRC agreed to address these issues in the following manner: The Field Test Kit Standard contained in Section 10 will maintain the requirement for the Accuracy Test in the ascending and descending modes with water. The Appendix will contain a guidance document which recommends the periodic accuracy verification be performed in the descending mode only, utilizing either water or gas.

MID7 – Orientation of the Field Test Kit during Laboratory Evaluation.

Conclusion: The MRC agreed to modify Section 10.4.1.2 to state that Field Test Kit will be evaluated with the dial/display in the vertical position.

MID8 - see AV2

MID9 – Section 10.4.2.2.7 Pressure Dissipation Test
Staff reran the tests for Section 10.4.2.2.7 Pressure Dissipation Test on multiple Field Test Kits to determine if the five (5) second requirement in the draft standard is reasonable. Test results indicate that all but one product passed the five second requirement, and that particular test was over ten (10) seconds. When the test results exceed the specified five (5) seconds, it was found that the results of the field test procedure (i.e., air inlet of PVB) may be recorded in error. Tests were conducted with and without in-line filters, and Schrader valve depressors. The filters and Schrader inserts did not cause any of the

products to fail the test, and the filters had a minor impact on the test results. Based upon this second round of testing, the Staff recommended maintaining existing test criteria.

Conclusion: MRC agreed to maintain current draft Section 10.4.2.2.7.

Wilkins Regulator Company

WIL1 – Section 10.1.1.2 modified to match standard metric pipe sizes.

WIL2 – Table 10-1 modified to match standard metric pipe sizes.

WIL3 - Clerical error corrected.

WIL4 - Section 10.1.2.5 provides guidance, and is not design restrictive.

Conclusion: Non-persuasive - maintain current draft Section 10.1.2.5.

WIL5 – Section 10.1.2.7 provides guidance, and is not design restrictive.

Conclusion: Non-persuasive - maintain current draft Section 10.1.2.7.

WIL6 – Section 10.1.2.9 Size of test cocks had been previously reviewed for ¼" test cocks on the 1-1/4" to 2"assemblies. The sizing of test cocks had been associated with the need for adequate flushing and bypassing purposes.

Conclusion: Non-persuasive – maintain current draft Section 10.1.2.9.

WIL7 – Clerical error corrected.

WIL8 – The sizing of the waterway passage in butterfly shutoff valves is addressed in the referenced AWWA Standard C504.

Conclusion: MRC agreed to maintain current draft Section 10.1.2.17.

WIL9 – Where ferrous materials are required to be protected to resist corrosion, it is implied that the specified stainless steels are a form of protection.

Conclusion: MRC agreed to maintain current draft Section 10.1.3.3.

WIL10 – Section 10.1.3.4 – Current approved assemblies use other than schedule 40 pipe.

Conclusion: MRC agreed to delete reference to *Schedule 40* from Section 10.1.3.4

WIL11 – Section 10.1.3.4 Body and Cover – Proposal to allow additional materials Proposal to modify Section 10.1.3.4 to include: "…or other bronze alloys containing a minimum of 79% copper and maximum of 15% zinc. Alloys containing less than 79% copper and/or more than 15% zinc shall be tested for dezincification resistance per ISO 6509 with a 200 micrometer maximum average depth penetration."

> Conclusion: MRC adopted the proposed language for Sections 10.1.3.4, 10.1.3.6, 10.1.3.8, 10.1.3.10, 10.1.3.16, 10.1.3.17 and 10.1.3.18

WIL12 – Clerical, this Section was previously deleted.

WIL13 - Section 10.1.3.14 provides guidance, and is not design restrictive.

> Conclusion: Non-persuasive - maintain current draft Section 10.1.3.14.

WIL14 – Clerical error corrected

WIL15 – see F3

WIL16 – Draft corrected to be consistent with other sections.

WIL17 – Section 10.2.1.5 Clarification was requested regarding the requirement for a production assembly to be submitted for evaluation approximately six months into the one year field evaluation. This has been standard practice, per policy, for several years under the 9th Edition. This helps the Foundation to confirm that the production assemblies are the same as the assemblies under active evaluation. Staff prepared proposed new language for Sections 10.2.1.2a and 10.2.1.5: "*Following the successful completion of the Laboratory Evaluation and before the assembly(s) can be granted approval, a production quality assembly(s) shall be submitted for review and/or evaluation.*" This does not imply that the production assembly will be fully Laboratory Evaluated again. Components may just be reviewed or inspected for verification against the drawings.

> Conclusion: MRC adopted proposed new language for Sections 10.2.1.2a and 10.2.1.5.

WIL18 – Draft corrected to be consistent with other sections.

WIL19 – Section 10.2.2.3.2 The flow test for each type of assembly requires a portion of the laboratory test to be completed *at* 200% rated flow, not *in excess of* 200% rated flow.

> Conclusion: MRC agreed to modify the language for each flow test to read "…a flow capacity ~~in excess~~ <u>of two times</u> the rated flow conditions…" This shall affect Sections 10.2.2.3.2a, 10.2.3.3.2a, 10.2.4.3.2a, 10.2.5.3.2a, 10.2.6.3.2a, 10.2.7.3.2a, 10.2.8.3.2a, 10.2.9.3.2a, 10.2.10.3.2a.

WIL20 – Clerical error (i.e., metric conversion) corrected in Sections 10.2.2.3.6, 10.2.2.3.8, 10.2.2.3.8.c.

WIL21 – see AV1. Reference added to ANSI/ASME MRF-14M Measurement of Fluid Flow Using Small Bore Precision Orifice Meters.

WIL22 – Direction of flow arrow will be added to Figure 10.3.

WIL23 – Clerical error corrected.

WIL24 – Clerical error corrected.

WIL25 - see AV3

WIL26 - see MID5/MID6

WIL 27 – see AV2

Backflow Prevention Supply

BPS1 - see MID5/MID6. During the Laboratory Evaluation of all backflow prevention assemblies, the flow test is performed under increasing and decreasing flow conditions. Some check valve designs perform differently being opening and closing conditions. The head loss versus flow rate curves issued to the manufacturers contain both the increasing and decreasing curves. This difference between these two curves is the hysteresis. The assembly must operate acceptable under both conditions.

BPS2 – see MID5/MID6

BPS3 – The Foundation's Manual Review Committee consists of individuals from different facets in the cross-connection control industry. The MRC is represented by water purveyors, health agencies, testers, manufacturers (BPMA), and the Foundation Staff.

BPS4 – Section 9 of the Manual contains the Field Test Procedures for each of the testable assemblies.

BPS5 - The Foundation is not an authority having jurisdiction in any Federal, State, or local situation. The standards or recommended practices that are developed by the Foundation are voluntary. If a local/regional jurisdictional authority wishes to adopted the standards and/or recommended practices, that is their prerogative.

Paul Bladdick

PB1 – see AV2 and MID9

PB2 – see BPS5. If a field test kit requirement is adopted by a certification program, we would anticipate that a grandfathering clause, or phase-in period, would be utilized. The backflow prevention assembly testers would have to be clearly notified of any change, and what implementation timeline may be used.

PB3 - The MRC has identified the scope of this standard as a portable field test kit utilized for the insitu field testing of backflow prevention assemblies. It is not intended as a standard for laboratory equipment.

Bill Hamrick

BH1 – see MID5/MID6

BH2 – see AV2

BH3 – see MID3

BH4 – see MID5/MID6

BH5 – see MID5/MID6

BH6 – The field test procedures reference the ¼ turn of the needle valve as an upper limit. It is not intended to imply that the needle valve is opened immediately to ¼ turn, but rather that the needle valve must be opened slowly to produce a slow movement of the reading. Testing performed many years ago for the development of the 9th Edition showed that a field test kit would maintain an accurate reading with the needle valve opened no more than 1/4 turn. The basis of the ¼ turn was to develop a reference for the testers in the field so that they would not induce inaccurate readings on the field test kits.