



Jaros Baum & Bolles
Consulting Engineers

Automatic Breech Control Valves

Seven World Trade Center

New York, New York

Project No. 12244.0.000

January 27, 2005

Commissioner Fatma Amer
Acting Deputy Commissioner
Technical Affairs
New York City Department of Buildings
280 Broadway
New York, New York 10007

Dear Commissioner Amer:

On Monday, January 24, 2005, we attended the testing of the proposed Singer automatic breech control valve (ABCV) at the Singer Valve Co. plant in Surrey, British Columbia. The testing was also witnessed by Mr. Jerry Kirkpatrick of Underwriters Laboratories, Inc. A 6 inch stainless steel valve was tested to confirm that the operating characteristics were as described to both your office and the New York City Fire Department. The tests followed the basic outline described in our letter of November 30, 2004 (copy enclosed). At the end of the testing, the following conclusions were reached:

1. The valve performs as described and the performance is repeatable.
2. The valve is capable of meeting the three design flow requirements outlined in our letter.
3. The valve closes "drip tight" at approximately 121% of design flow at 1,000 gpm and 135% of design flow at 500 and 750 gpm.
4. The pressure differential required to trip the valve is 5 psi at design flows of 500 gpm and 750 gpm and approximately 10 psi at a design flow of 1,000 gpm.
5. The static pressure required to achieve the shutoff is approximately 2 psi greater than the pressure differential.
6. We were able to "fail" the valve close when simulating a failure of the downstream pressure sensing stainless steel braided tubing. This failure is highly unlikely and can be sensed by locating a position indicator on the valve.

Mr. Kirkpatrick will verify the test results in a final report of the testing which he indicated would be forwarded in approximately two weeks.

NYC DEPT. OF BUILDINGS
TECHNICAL AFFAIRS
RECEIVED
2005 JAN 32 P 5:07

Robert V. Benazzi
Partner
212.530.9303

7 WTC

JB&B

Jaros Baum & Bolles
Consulting Engineers

-2-

Based upon these preliminary results, we would recommend the following with respect to the Singer valve:

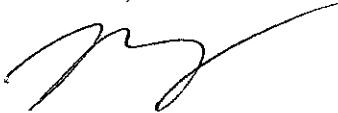
1. The valve be factory set, tested, and certified to pass 1000 gpm at design flow and shutoff at approximately 1250 gpm.
2. The valve be equipped with a position indicator set to operate and signal the fire command center when the valve moves from a full open position.
3. The valve be located with a minimum inlet static pressure greater than 12 psi (at location planned, the inlet static is 15 psi).
4. The valve be equipped with ports to allow for the installation of an external differential pressure gauge and valves to allow for field testing of each valve.
5. The valve be equipped with an external check valve to prevent excessive vapor pressure caused by the loss of the standing column of water during a breach preventing the valve to close tight.

We believe these recommendations will allow the valve to perform as conceived and provide the ability to preserve the captive building water supply and allow the Fire Department to pump the system upon their arrival at the site.

For your information, the test of the valve manufactured by Cla-Val is tentatively scheduled for the second week in February. Mr. Kirkpatrick or another representative of Underwriters Laboratories will also be present at that test and it is our intention to perform the test in a similar manner. Upon completion of that test, we will also furnish you an interim report. Upon receipt of Mr. Kirkpatrick's report on both the Singer Valve and the Cla-Val valve test, we will forward same to you. If you have any questions, please do not hesitate to call.

Very truly yours,

JAROS, BAUM & BOLLES



RVB:geb

cc: (1) Chief H. Hill
(1) Mr. K. Oksanen
(1) Mr. J. Kirkpatrick
(1) Mr. A. P. Pamkovcin
(1) Mr. N. Holt

Enc. (All Listed)

(1) Mr. J. Klein
(1) Mr. A. A. DiGiacomo
(1) Mr. R. V. Benazzi
(1) Mr. J. K. McGarity
(1) File

Automatic Breach Control Valve
7 World Trade Center
New York, New York
Project No. 12244.0.000

November 30, 2004

Mr. Kari Oksanen
General Manager
Singer Valve Inc.
12850 87th Avenue
Surrey, BC, Canada V3V 3H9

Dear Mr. Oksanen:

We have met with the New York City Department of Buildings and the City of New York Fire Department to present the Automatic Breach Control Valve (ABCV) as proposed for installation within 7 World Trade Center. Both agencies are supportive of the concept, as noted in their enclosed letters, and await the U.L. witnessed test results performed at your facilities.

The following matrix represents the design conditions that must be included in your testing:

<u>Test Condition No.</u>	<u>Valve Size</u>	<u>Minimum Inlet Pressure</u>	<u>Unobstructed Flow Conditions</u>			<u>ABCV Closed Position Flow Rate (150% of Design Flow)</u>
			<u>Minimum Low Flow Condition</u>	<u>Designed Flow Condition</u>	<u>Maximum High Flow Condition</u>	
1	6 in.	10 psi	1 gpm	500 gpm	749 gpm	750 gpm
2	6 in.	10 psi	1 gpm	750 gpm	1,124 gpm	1,125 gpm
3	6 in.	10 psi	1 gpm	1,000 gpm	1,499 gpm	1,500 gpm

The test data shall include, but not be limited to, the following:

Minimum Inlet Pressure: Based on the three (3) test conditions, the test data shall indicate the minimum inlet pressure required to satisfy the performance criteria repeatedly. The test data should also indicate an inlet pressure range (minimum/maximum) that will allow the valve to meet its performance requirements.

Unobstructed Flow Conditions: Based on the three (3) test conditions, the test data shall indicate the low flow, designed flow and high flow quantities that will pass repeatedly without being obstructed by valve closure. The intent of noting the maximum high flow conditions is to determine the maximum flow quantity that will pass prior to activation of the ABCV.

ABCV Closed Position Flow Rate: Based on the three (3) test conditions, the test data shall indicate the quantity of water that will activate the ABCV valve to a closed "drip-tight" condition repeatedly.

Differential Pressure Readings: Based on the three (3) test conditions, the test data shall indicate the differential pressure settings required for proper activation of the valve and include the various readings along with the corresponding flow rates as determined during the tests. In addition, if varying inlet pressures require that the differential pressure settings vary along with the inlet pressures, they should be noted and identified in the test data.

Valve Failed Open: Testing shall be performed through various operations to confirm that the valve will always fail in the open position. If there are any conditions that will cause the valve to fail in the closed position, they shall be documented in the test report.

Bypass Orifice Flow Rate: Test data shall indicate the flow rate from the bypass orifice at the three (3) test conditions.

It is imperative that the U.L. witnessed testing be arranged as early as possible so that we can provide the New York City Department of Buildings and the City of New York Fire Department with the testing results to complete the approval process that is pending.

As indicated in the letter from the New York City Department of Buildings, they have stipulated that position indicators be incorporated into the design of the ABCV's. In addition, they have requested that a testing and maintenance document be developed for the ABCV. Both items will need to be available, along with the test data, in order to obtain their approval.

Please advise us when the test date is available, as we would like to reserve the option of witnessing the test of the ABCV. We also request that a copy of your proposed testing criteria be sent to us prior to the date of the test.

Thank you for your continued efforts and support.

Very truly yours,

JAROS, BAUM & BOLLES

James K. McGarity

JKM:jb

cc: (1) Mr. A. P. Pankovcin
(1) Mr. N. Holt
(1) Mr. J. Klein
(1) Mr. A. A. DiGiacomo
(1) Mr. R. V. Benazzi
(1) Mr. J. K. McGarity
(1) File

Enc. (All Listed)

z:\worldox\docs\122440\tr\00018231.doc