Nuclear Valve Division
Borg-Warner Corporation
7500 Tyrone Ave., Van Nuys, California 91409

Borg-Warner Energy Equipment

REPORT NO. 1843
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DATE 23 March 1981
REV A 3-25-81

FLOW INTERRUPTION TEST
FOR
PART NO. 77910
SUPPLIED TO
COMBUSTION ENGINEERING, INC.
ARIZONA NUCLEAR POWER PROJECT
PALO VERDE NUCLEAR GENERATING STATION
SPECIFICATION NO. 14273-PE-705

Prepared by: B. A. Patel
Project Engineer

Approved by: C. Braley
C. Braley
Manager, Design Engineering

Approved by: M. Riaz
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Manager, Valves

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REVISION B

DATE 5/18/81

CHANGE RECORD SHEET

REVISIONS						
DATE	PAGES AFFECTED			DESCRIPTION	APPROVED BY	REV LTR
	REVISED	ADDED	REMOVED			
5/18		X		Seat Leakage Test Results Attachment 1		B
		X		AETL Report No. 548-9142		B

Prepared by: B. A. Patel
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C. Braley

1.0 PURPOSE

1.1 To demonstrate that the valve will perform satisfactorily when subjected to flow interruption.

2.0 REFERENCES

2.1 Combustion Engineering Specification No. 14273-PE-705.

2.2 ASME Boiler and Pressure Vessel Code Section III, 1974 Edition.

2.3 MSS-SP-61 - Hydrostatic testing of steel valves.

2.4 NVD P/N 79190 identical to 77910 except weld prep. Actual test will be conducted on P/N 79190.

3.0 TEST EQUIPMENT REQUIRED

3.1 High flow water system ref. para. 6.1.1.

4.0 PRETEST REQUIREMENTS

4.1 Test valve shall have gate visually examined through valve ports. Any evidence of defects shall be noted.

4.2 Test valve shall be tested per applicable acceptance test procedure.

4.3 Required pipe connections with adapter ends shall be attached to valve prior to start of test.

4.4 A photograph of each test setup shall be taken and is to be included as part of test report.

5.0 POST TEST REQUIREMENTS

5.1 After completion of all tests, valve shall be tested per applicable acceptance test procedure.

5.2 Valve gate shall be visually examined through valve ports for any evidence of galling.

6.0 TEST OUTLINE

6.1 Valve Leakage Test and Cycle Tes.

These tests will be performed as part of standard valve acceptance test procedure.

6.2 Flow Interruption Capability Tests

6.2.1 Test valve flow requirements are listed in the following table:

Inlet or Head Press (PSI)	Flow (GPM)	Valve Close Time (Sec) Max
2500	600	30

6.2.2 Install valve in a test system capable of meeting the flow and pressure requirements specified in para. 6.2.1. Instrumentation required to simultaneously record upstream total pressure and downstream static pressure (ref. Figure 1).

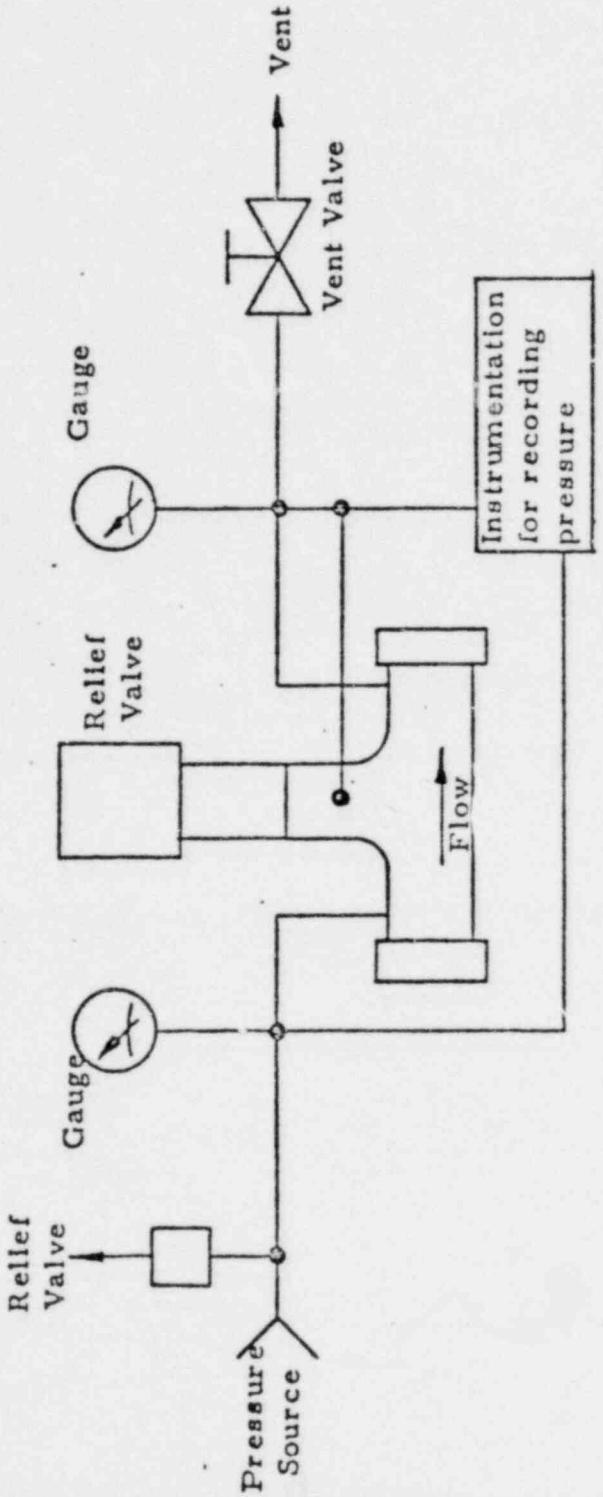
6.2.3 Downstream end of valve shall discharge to atmosphere or suitable low pressure receiver.

6.2.4a Start with valve in full open position and close valve. During the closing cycle, flow through the valve shall at least equal that noted in para. 6.2.1 with the differential pressure increasing to the value noted.

6.2.4b Start with valve in full close position and open the valve. (Valve must be full open). During the opening cycle, flow through the valve shall at least equal that noted in para. 6.2.1 with the differential pressure increasing to the value noted.

6.2.5 Following completion of flow test, check valve leakage per applicable acceptance test procedure.

6.2.6 The above test shall be performed a total of 3 closing and opening cycles.



TEST SETUP
FIGURE 1

Nuclear Valve Division
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ATTACHMENT 1

ATTACHMENT TO REPORT NO. 1843

RESULTS OF FLOW INTERRUPTION TEST

NVD Part No. 79190
Serial No. 25709

TVA Tag No. _____
Description 3" Gate Valve
Seat Leakage Test Pressure
2500-2550 psig

TEST	PRESSURE Closing	PRESSURE Opening	FLOW Closing	FLOW Opening
1				
2				
3				

SEAT LEAKAGE ONE SIDE 0 CC / 5 MIN NORMAL FLOW DIRECTION
OTHER SIDE 200 CC/5 MIN OPPOSITE DIRECTION

NVD FT 235

Test Performed by: L. Macias
Witnessed by: Russ Hi TVA 5-14-81

PHOTOGRAPH OF ALL SETUPS ON NEXT PAGE