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February 5, 2010

AEP-NRC-2010-19 10 CFR 50.55a

U. S. Nuclear Regulatory Commission ATTN: Document Control Desk Washington, D.C. 20555-0001

SUBJECT: Donald C. Cook Nuclear Plant Unit 2 Docket No. 50-316 Fourth Ten-Year Interval Inservice Testing Program Relief Request REL-004

Dear Sir or Madam:

Pursuant to 10 CFR 50.55a(a)(3)(i), Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant (CNP) Unit 2, hereby requests Nuclear Regulatory Commission approval of a proposed alternative to the American Society of Mechanical Engineers (ASME) Operation and Maintenance Code requirement that Class 1 pressure relief valves be tested at least once every five years.

The basis for the proposed alternative is ASME Code Case OMN-17. This Code Case allows for a 72-month test interval for main steam safety valves (MSSV) in pressurized water reactor plants based on maintenance practices. The proposed alternative would be applied to two CNP Unit 2 MSSVs on a one-time basis to allow the testing to be performed during the fall 2010 Unit 2 refueling outage. The proposed alternative would provide an acceptable level of quality and safety. The details of the proposed alternative request are provided in the enclosure to this letter.

I&M requests approval of this proposed alternative by February 19, 2010, to enable continued full power operation until the Unit 2 refueling outage scheduled to start in October 2010. This date is requested due to the scheduled Unit 1 outage beginning in March 2010, and provides sufficient time, if the proposed alternative is not approved, to test the two Unit 2 MSSVs while Unit 1 is still at power, thereby assuring at least one unit is operating should complications arise during testing that require the shutdown of Unit 2.

There are no new or revised commitments in this letter. Should you have any questions, please contact Mr. James M. Petro, Jr., Regulatory Affairs Manager, at (269) 466-2489.

Sincerely.

Raymond A. Hruby, Jr. Vice President - Site Support Services

HLE/jen

Enclosure: Relief Request REL-004



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c: T. A. Beltz – NRC Washington, DC J. T. King – MPSC S. M. Krawec, Ft. Wayne AEP MDEQ – WHMD/RPS NRC Resident Inspector M. A. Satorius – NRC Region III

#### 10 CFR 50.55a Relief Request REL-004

# Proposed Alternative In accordance with 10 CFR 50.55a(a)(3)(i)

--Alternative Provides Acceptable Level of Quality and Safety--

# 1. American Society of Mechanical Engineers (ASME) Code Component Affected

Component ID	onent Code C D Class		Description						
2-SV-2B-1	2*	С	Steam generator OME-3-1 Safety Valve 2B						
2-SV-3-1	2*	C	Steam generator OME-3-1 Safety Valve #3						

\*Code Class 2 valves treated as a Code Class 1 valve.

These two valves are Main Steam Safety Valves (MSSVs). The primary purpose of the MSSVs is to provide overpressure protection for the secondary side of the steam generators and associated piping and components. The MSSVs also provide protection against overpressurizing the reactor coolant system (RCS) boundary by providing a heat sink for the removal of energy from the reactor coolant system if the preferred heat sink, provided by the Condenser and Circulating Water System, is not available. For each of the four steam generators, there are five MSSVs located on a header attached to the main steam piping outside of containment, upstream of the steam generator stop valve. The five MSSVs for each steam generator have sufficient combined capacity to limit the secondary system pressure to  $\leq 110\%$  of steam generator design pressure in accordance with ASME Code, Section III.

#### 2. Applicable Code Edition and Addenda

ASME Operation and Maintenance Code (ASME OM Code), 2001 Edition with Addenda through OMb-2003.

#### 3. <u>Applicable Code Requirement</u>

Appendix I, paragraph I-1320(a) requires that Class 1 pressure relief valves shall be tested at least once every 5 years. Additionally, the test interval for any individual valve shall not exceed 5 years.

#### 4. <u>Reason for Request</u>

The applicable code requirement stated above requires a test interval of 5 years for MSSVs which are Class 2 valves treated as Class 1 valves per Appendix I, paragraph 1350(a). In accordance with these requirements, the CNP Inservice Testing (IST) Program test interval for valves is based on a test-to-test time interval rather than

an install-to-test time interval. Thus, the test interval is started on the date of the last successful test of a valve, which is not necessarily the same date as the valve installation date. The required testing ensures that the MSSVs will open at the pressures assumed in the safety analysis.

During the Unit 2 refueling outage in October 2007, two MSSVs were removed and sent to the vendor for offsite testing. Two other valves were installed in the plant to replace the two that were removed. These valves had been tested satisfactorily at the vendor facility prior to the installation. The valve designated as 2-SV-2B-1 was tested on April 3, 2005, and the valve designated as 2-SV-3-1 was tested on May 27, 2005. Thus, when the valves were installed, greater than two years had elapsed since their last successful test. However, CNP's IST Program test tracking system incorrectly recorded the installation date for these two valves as the last test date.

A subsequent review of industry operating experience identified this discrepancy regarding compliance with the maximum test interval of 5 years. The review determined that, based on the last successful test dates, 2-SV-2B-1 and 2-SV-3-1 will exceed the specified 5-year test interval on April 2, 2010, and May 26, 2010, respectively. Therefore, in order to comply with the above identified ASME OM Code requirement, both of these valves would have to be tested outside of the normally scheduled test window. The valves are normally scheduled to be tested just prior to a refueling outage when reactor power level is being reduced and test conditions can be established with minimal plant impact.

Testing the MSSVs during normal full power operation would require that reactor power level be reduced from 100% to approximately 80%. This reduced power level would be maintained for the duration of the testing which is approximately six hours. Following the successful test of the two MSSVs, reactor power would be returned to 100%. The current operating cycle has shown that the Reactor Coolant Pump (RCP) #2 seals are very sensitive to certain parameters, such as seal injection temperature, volume control tank pressure, component cooling water temperature, containment temperature, etc. Large borations and dilutions necessary for power reduction and escalation significantly impact these parameters and can lead to large variations in the #2 seal leakage from one or more RCPs. This leakage is routed to the Reactor Coolant Drain Tank (RCDT) where level changes are used to determine the total #2 seal leakage rate. Currently, the Unit 2 RCDT in-leakage rate has been varying between 0.12 gallons per minute (gpm) and 0.19 gpm, primarily due to leak-off from the four RCP #2 seals. While this leak-off rate is within the acceptable tolerance for the RCPs, the normal RCDT in-leakage rate is less than 0.1 gpm. An RCP #2 seal standpipe level high alarm with the RCDT inleakage at 1.1 gpm or greater would indicate excessive seal leak-off. These indications would require a plant shutdown and removal of the affected RCP from service in accordance with the abnormal operating procedure for the malfunction of an RCP.

Based on the above discussion, and consistent with the guidance in NUREG-1482, Revision 1, Section 2.5, authorization of this alternative on a one-time basis would provide an acceptable level of quality and safety, and avoid a potential adverse impact to RCP seal leak-off rate that may require the shutdown of Unit 2.

# 5. <u>Proposed Alternative and Basis for Use</u>

In accordance with 10 CFR 50.55a(a)(3)(i), Indiana Michigan Power Company (I&M) is proposing an alternative to the above identified ASME OM Code requirement. The proposed alternative would provide an acceptable level of quality and safety. As an alternative to these code requirements, the allowable test intervals for 2-SV-2B-1 and 2-SV-3-1 will be extended such that they end at the next Unit 2 refueling outage scheduled to begin in October 2010. I&M will test the two MSSVs during that outage in accordance with the CNP IST Program.

The ASME Code Committees have approved Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure/Safety Valves" (Reference 1), which allows a 72-month (6 year) test interval. Although this Code Case has not been approved for use in Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code, June 2003," I&M considers that it provides adequate guidance for acceptable alternatives to the ASME Code requirements for such valve testing. I&M proposes to use ASME approved Code Case OMN-17, paragraph (e) as the basis for this one-time relief request to extend the test interval for the two MSSVs. Code Case OMN-17, paragraphs (d) and (e) state:

"(d) Maintenance. The Owner shall disassemble and inspect each valve after as-found set-pressure testing to verify that parts are free of defects resulting from time related degradation or service induced wear. Based upon this inspection, the owner shall determine the need for additional inspections or testing to address any generic concerns. As-left set-pressure testing shall be performed following maintenance and prior to returning the valve to service.

"(e) Each valve shall have been disassembled and inspected in accordance with (d) above prior to the start of the 72-month test interval. Disassembly and inspection performed prior to the implementation of this Code Case may be used."

The previous recertification and testing of the valves that are the subject of this proposed alternative are described below. Extending the test interval for the subject valves to the October 2010 Unit 2 outage is within the 72-month test interval described in OMN-17. This recertification and testing provides assurance that the valves will continue to fulfill their specified safety function of lifting and relieving pressure to limit secondary system pressure to  $\leq 110\%$  of system design pressure. Therefore, there is an acceptable level of quality and safety with the extended test intervals.

#### <u>2-SV-2B-1</u>

2-SV-2B-1 will exceed the required five year test interval on April 2, 2010.

	nooda ino rodan da nito y	our coor incorrar on 7 april	
Date Tested	Date Installed	Design Setpoint	As Left Setpoint
4/3/2005	10/15/2007	1075 psig	1072 psig

As-found testing for this valve was performed prior to shipment to the vendor with the results within +/-1% of the set-pressure acceptance criteria, which is within the as-found acceptance criteria of +/-3% of valve nameplate set-pressure. The vendor performed

certification lift tests on April 3, 2005. Prior to that, the valve was disassembled and inspected. No significant deficiencies were noted. Wear and contact surfaces were cleaned and lubricated as required. A new pre-oxidized disc was installed. The valve was mounted on the steam test stand and pressure was stabilized at 968 pounds per square inch gauge (psig). No pretest leakage was noted. The valve was tested and adjustments were made as needed to achieve the required as-left limits of +/-1% of the set-pressure acceptance criteria. Following set-pressure certification, system pressure was maintained at >90% of set-pressure. No moisture was detected on a cold bar placed in the vicinity of the seats. The valve was cleaned, sealed, and packaged for return shipment and stored in accordance with ANSI/ASME N45.2.2 – 1978, "Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants,"

Two years, six months, and 12 days of the five-year test interval were spent with the valve, 2-SV-2B-1, in the proper storage environment.

#### 2-SV-3-1

2-SV-3-1 will exceed the required five year test interval on May 26, 2010.

Date Tested	Date Installed	Design Setpoint	As Left Setpoint
5/27/2005	10/16/2007	1085 psig	1085 psig

The vendor performed certification lifts on May 27, 2005. Prior to that, the valve was mounted on the steam test stand, and pressure was stabilized at 976 psig. Pretest seat leakage was noted. The as-found lift was 1082 psig (-0.3% of valve nameplate set-pressure). This was within the CNP as-found acceptance limits of +/-3%. of valve nameplate set-pressure Set-pressure was certified, but the valve seat was leaking posttest. The valve was repaired and retested. During the repair, no deficiencies were identified. A new pre-oxidized disc was installed. Wear and contact surfaces were cleaned, buffed, and lubricated as required. The valve was tested and adjustments were made as needed to achieve the required as-left limits of +/-1% of the set-pressure was maintained at >90% of set-pressure. No moisture was detected on a cold bar placed in the vicinity of the seats. The valve was cleaned, sealed, and packaged for return shipment in accordance with ANSI/ASME N45.2.2 – 1978, Section 3.2.3.

Two years, four months, and 20 days of the five year test interval were spent with the valve in a proper storage environment.

The valve installed at 2-SV-2B-1 was left within 0.5% of set-pressure of the valve nameplate set-pressure and the valve installed at 2-SV-3-1 was left within 0.1% of set-pressure of the nameplate set-pressure. Both of these values are within the as-left set-pressure requirement of +/-1% of the set-pressure acceptance criteria. Maintenance documentation does not indicate wear on the valves or any defects that could affect the operability of these valves. Based on the recertification and storage conditions, as prescribed by ANSI/ASME N45.2.2 – 1978, in controlled areas for the period before installation, there is assurance that the valves are able to perform their safety function.

#### History of Vendor Testing for Other MSSVs

A review of as-found setpoint testing results for the last 10 years (from 2000 to present) for all instances where MSSVs (Unit 1 and Unit 2) were disassembled, inspected, and tested by the vendor prior to installation (which comprises 63 as-found tests) shows that the average setpoint change is an absolute deviation value of 2.08%. There were 14 as-found setpoints greater than +3% with the highest as-found of +7.72% deviation. There was one as-found setpoint greater than the -3% with a -3.59% deviation. Table 1 of this enclosure summarizes the as-found setpoint data for the 63 tests discussed above.

#### Impact of Pre-Installation Storage

Each refueling outage, a minimum of 20% of the MSSVs are tested. Although the IST program does not require removal of the valves each testing interval, valves are removed periodically to verify functionality of components or upgrade sub-components for reliability and performance. When a valve is removed and recertified by the vendor, identified adverse conditions are corrected, the discs and seats are lapped to the extent required, and the valve is reassembled. Each MSSV is then recertified for service through inspection and testing consistent with ASME OM Code requirements.

After recertification testing, the MSSVs are stored in a controlled environment in restricted access areas at the vendor facility or at the CNP materials storage facility.

A review of recertification and storage history, of the 63 tests results reviewed above, shows that the typical storage time is less than one month between recertification and installation of an MSSV. The review did identify six MSSVs that were stored for time periods ranging from 4 months to 37 months prior to installation. For these six valves, the as-found setpoint deviation were all within the +/-3% valve nameplate set-pressure acceptance band when tested following at least one cycle of service at power. This demonstrates that storage of recertified MSSVs for extended periods prior to installation has no adverse impact on valve performance.

#### Conclusion

Based on the above evaluation, there is continued assurance of valve operational readiness, as required by ASME OM Code 2001 Edition with Addenda through OMb-2003, Appendix I, paragraph I-1320(a), including consideration of the requested one-time extension of the test interval as outlined in this request. Therefore, I&M has concluded that authorization of this one-time request is an alternative that provides an acceptable level of quality and safety, and will avoid a power reduction and subsequent power escalation which has the potential to adversely impact RCP seal performance that may require the shutdown of Unit 2.

#### 6. Duration of Proposed Alternative

The proposed alternative is applicable to the fourth ten-year inservice testing interval for CNP Unit 2 until the next Unit 2 refueling outage, U2C19, which is scheduled to begin October 2010.

#### 7. <u>Precedent</u>

A similar relief request was approved by the NRC in a letter to PPL Susquehanna, LLC, dated January 7, 2010 (Reference 2). This letter cited the use of Code Case OMN-17 as the basis for one-time relief to extend the test interval for certain Main Steam Safety Relief Valves.

#### 8. <u>References</u>

- 1. ASME Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves."
- Letter from N. L. Salgado, Nuclear Regulatory Commission (NRC), to T. S. Rausch, Susquehanna Steam Electric Station, "Unit 1 Re: Relief Requests RR-07 and RR-08 from the Requirements of the OM Code Re: Inservice Testing of Safety Relief Valves," dated January 7, 2010, ADAMS Accession Number ML093520152.

Location Installed at	Design Set-Pressure (psig)	Certification Date	Vendor As Left Set Pressure (psig)	Vendor As Left Deviation (psig)	Vendor As Left % Deviation	Date Installed in Plant	Next Test Date Following Vendor Certification	First Ás Found Set Pressure (psig)	As Found Deviation (psig)	As Found % Deviation	As Left Set Pressure (psig)	As Left Deviation (psig)	As Left % Deviation
1-SV-1B-1	1065	01/03/2002	1070	-5	-0.47	05/18/2002	03/25/2005	1096.72	31.72	2.98	1060.63	-4.37	-0.41
1-SV-3-1	1075	10/16/2000	1069	6	0.56	10/26/2003	06/14/2004	1057.00	-18.00	-1.67	1082	7.00	0.65
2-SV-2B-2	1075	06/14/2004	1082	-7	-0.65	*	03/24/2006	1099.64	24.64	2.29	1080.57	5.57	0.52
1-SV-1B-3	1065	09/23/2000	1067	-2	-0.19	10/03/2000	05/03/2002	1103.00	38.00	3.57	1063	-2.00	-0.19
1-SV-1B-3	1065	05/15/2002	1067	-2	-0.19	05/22/2002	03/25/2005	1115.54	50.54	4.75	1061.53	-3.47	-0.33
1-SV-1B-3	1065	10/30/2006	1067	-2	-0.19	*	03/24/2008	1045.20	-19.80	-1.86	1062.7	-2.30	-0.22
1-SV-1B-1	1065	09/13/2000	1067	-2	-0.19	· *	05/03/2002	1099.64	34.64	3.25	1071	6.00	0.56
1-SV-1B-1	1065	05/16/2002	1072	-7	-0.66	*	10/06/2002	1062.87	-2.13	-0.20	1075	10.00	0.94
1-SV-1A-1	1065	10/06/2002	1075	-10	-0.94	*	03/24/2006	1099.64	34.64	3.25	1080.57	15.57	1.46
1-SV-1B-2	1065	09/25/2000	1062	3	0.28	10/10/2000	10/18/2003	1061.00	-4.00	-0.38	1060	-5.00	-0.47
1-SV-1A-3	1065	09/23/2000	1070	-5	-0.47	10/05/2000	10/17/2003	1053.00	-12.00	-1.13	1058	-7.00	-0.66
1-SV-1A-1	1065	09/13/2000	1070	-5	-0.47	*	05/03/2002	1094.00	- 29.00	2.72	1065	0.00	0.00
1-SV-1B-4	1065	10/29/2003	1067	-2	-0.19	04/02/2005	03/25/2008	1049.59	-15.41	-1.45	1065.11	0.11	0.01
1-SV-1B-4	1065	09/15/2000	1066	-1	-0.09	09/23/2000	05/03/2002 -	1124	59.00	5.54	1065	0.00	0.00
1-SV-1B-4	1065	10/28/2003	1066	-1	-0.09	11/05/2003	04/02/2005	1070.00	5.00	0.47	1062	-3.00	-0.28
1-SV-1A-4	1065	09/12/2000	1061	4	0.38	09/23/2000	05/03/2002	1109.00	44.00	4.13	1069	4.00	0.38
1-SV-1A-4	1065	05/16/2002	1064	1	0.09	05/19/2002	03/25/2006	1086.54	21.54	2.02	1059.1	-5.90	-0.55
1-SV-1A-2	1065	09/23/2000	1061	4	0.38	10/09/2000	05/03/2002	1057	-8.00	-0.75	1069	4.00	0.38
1-SV-1A-2	1065	05/14/2002	1059	6	0.56	05/21/2002	03/25/2005	1083.88	18.88	1.77	1059.37	-5.63	-0.53
1-SV-2B-1	1075	01/03/2003	1077	-2	-0.19	10/24/2003	04/04/2005	1052.00	-23.00	-2.14	1080	5.00	0.47
1-SV-2B-1	1075	04/04/2005	1080	-5	-0.47	04/11/2005	03/25/2008	1079.60	4.60	0.43	1071.1	-3.90	-0.36
1-SV-2A-3	1075	9/25/2000	1077	-2	-0.19	10/05/2000	10/18/2003	1084.00	9.00	0.84	1084	9.00	0.84

# Table 1 Main Steam Safety Valves Tested at the Vendor for the Last 10 Years with Next As-found Test Results

Location Installed at	Design Set-Pressure (psig)	Certification Date	Vendor As Left Set Pressure (psig)	Vendor As Left Deviation (psig)	Vendor As Left % Deviation	Date Installed in Plant	Next Test Date Following Vendor Certification	First As Found Set Pressure (psig)	As Found Deviation (psig)	As Found % Deviation	As Left Set Pressure (psig)	As Left Deviation (psig)	As Left % Deviation
1-SV-2B-1	1075	9/14/2000	1073	2	0.19	09/28/2000	05/03/2002	1158.00	83.00	7.72	1078	3.00	0.28
1-SV-2B-1	1075	05/16/2002	1071	4	0.37	05/20/2002	10/28/2003	1077.00	2.00	0.19	1082	7.00	0.65
1-SV-2B-2	1075	10/28/2003	1082	-7	-0.65	11/07/2003	09/13/2006	1084.78	9.78	0.91	1083.25	8.25	0.77
1-SV-2B-3	1075	9/26/2000	1082 <sup>.</sup>	-7	-0.65	10/06/2000	05/03/2002	1100.00	25.00	2.33	1077	2.00	0.19
1-SV-2A-2	1075	09/23/2000	1072	- 3	0.28	10/20/2000	05/02/2002	1122.00	47.00	4.37	1079	4.00	0.37
1-SV-2A-2	1075	05/15/2002	1072	3	0.28	05/22/2002	09/13/2006	1087.87	12.87	1.20	1081.2	6.20	0.58
1-SV-2A-4	1075	09/15/2000	1069	6	0.56	. *	05/03/2002	1096.00	21.00	1.95	1076	1.00	0.09
1-SV-2A-4	1075	10/28/2003	1082	-7	-0.65	11/04/2003	04/01/2005	1061.00	-14.00	-1.30	1073	-2.00	-0.19
1-SV-2A-4	1075	04/01/2005	1073	2	0.19	04/12/2005	03/25/2008	1104.00	29.00	2.70	1080.21	5.21	0.48
1-SV-2B-4	1075	09/15/2000	1076	1	-0.09	*	05/03/2002	1155.00	80.00	7.44	1071	-4.00	-0.37
1-SV-2B-4	1075	10/29/2003	1082	-7	-0.65	11/04/2003	04/01/2005	1087.00	12.00	1.12	1076	1.00	0.09
1-SV-2B-4	1075	04/01/2005	1076	-1	-0.09	04/12/2005	03/25/2008	1100.03	25.03	2.33	1082.35	7.35	0.68
1-SV-3-1	1085	09/14/2000	1079	6	0.55	*	05/03/2002	1116.00	31.00	2.86	1088	3.00	0.28
1-SV-3-1	1085 .	10/29/2003	1083	2	0.18	04/11/2005	03/25/2008	1097.20	12.20	1.12	1091.9	6.90	0.64
1-SV-3-2	1085	09/22/2000	1088	-3	-0.28	10/20/2000	05/02/2002	1067.00	-18.00	-1.66	1080	-5.00	-0.46
1-SV-3-2	1085	05/14/2002	1088	-3	-0.28	05/22/2002	03/25/2005	1081.23	-3.77	-0.35	1085.42	0.42	0.04
1-SV-3-3	1085	09/22/2000	1087	-2	-0.18	10/07/2000	05/03/2002	1109.00	24.00	2.21	1081	-4.00	-0.37
1-SV-3-3	1085	05/13/2002	1093	-8	-0.74	05/22/2002	03/25/2005	1102.29	17.29	1.59	1080.42	-4.58	-0.42
1-SV-3-1	1085	09/13/2000	1089	-4	-0.37	*	05/03/2002	1105.00	20.00	1.84	1096	11.00	1.01
1-SV-3-4	1085	10/28/2003	1078	7	0.65	11/05/2003	04/02/2005	1084.00	-1.00	-0.09	1091	6.00	<sup>、</sup> 0.55
1-SV-3-3	1085	04/02/2005	1091	-6	-0.55	04/12/2005	03/25/2008	1106.54	21.54	1.99	1085.03	0.03	0.00
2-SV-1A-3	1065	05/14/2003	1072	-7	-0.66	05/20/2003	03/23/2006	1098.40	33.40	3.14	1069.49	4.49	0.42
2-SV-1A-1	1065	05/13/2003	1073	-8	-0.75	05/25/2003	03/24/2006	1091.98	26.98	2.53	1074.81	9.81	0.92
2-SV-1A-4	1065	05/14/2003	1058	7	0.66	05/18/2003	03/23/2006	1026.78	-38.22	-3.59	1063.88	-1.12	-0.11
<sup>•</sup> 2-SV-1B-4	1065	05/14/2003	1065	0	0.00	05/23/2003	03/24/2006	1111.08	46.08	4.33	1059.38	-5.62	-0.53

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Location Design Certification Vendor Vendor Vendor Date Next Test As Found As Left % First As As Found As Left As Left Installed at Set-Pressure Date As Left As Left As Left % Installed in Date Found Deviation Set Deviation Deviation % (psig) Set Deviation Deviation Plant Following Set Deviation Pressure (psig) (psig) Pressure (psig) Vendor Pressure (psig) (psig) Certification (psig) 2-SV-1A-2 1065 05/12/2003 1062 3 0.28 05/19/2003 03/23/2006 1079.18 14.18 1.33 1065.08 0.08 0.01 2-SV-1B-3 1065 05/13/2003 1068 -3 -0.28 05/20/2003 03/23/2006 1071.46 6.46 0.61 1072.72 7.72 0.72 2-SV-1B-2 -7 1065 05/14/2003 1072 -0.66 05/19/2003 03/23/2006 1071.38 6.38 0.60 1071.68 6.68 0.63 2-SV-1B-1 1065 05/13/2003 1066 -1 -0.09 05/25/2003 03/24/2006 1103.88 38.88 3.65 1072.33 7:33 0.69 2-SV-2A-4 1075 05/14/2003 1079 -4 -0.37 05/20/2003 03/24/2006 1110.18 35.18 3.27 1077.68 2.68 0.25 2-SV-2A-1 1075 05/13/2003 1075 0 0.00 05/19/2003 03/23/2006 1112.68 37.68 3.51 1074.28 -0.72 -0.07

\*Vendor has verified that testing occurred on the date specified, but documentation of the installation date could not be located.

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