Entergy

Entergy Operations, Inc.
River Bend Station
5485 U.S. Highway 61N
St. Francisville, LA 70775
Tel. 225-381-4157

Joseph A. Clark
Manager, Regulatory Assurance

May 14, 2014

RBG-47456

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: Relief Request; ASME Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves"
River Bend Station - Unit 1
License No. NPF-47
Docket No. 50-458

Dear Sir or Madam:

Subject: 10 CFR 50.55a Requests Associated with the Third Ten-Year Inservice Testing Interval. This request is in two parts; first is a general request in accordance with a Code Case to allow an alternate testing frequency of valves and the second is a one-time request to align the currently installed valves to the requested frequency. Due to the dependence of the one time request on the general request, the general request needs approval for the one time request to be valid.

Pursuant to 10 CFR 50.55a(a)(3)(i), Entergy Operations Incorporated (EOI), the licensee for River Bend Station (RBS), hereby requests NRC authorization or approval of the enclosed 10 CFR 50.55a requests associated with the Third Inservice Testing (IST) Interval for RBS.

Relief Request No. VRR-RBS-2014-1 (Attachment 1) requests authorization to implement ASME Code Case OMN-17, Revision 0, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves", for the testing frequency on the Class 1 Main Steam Safety/Relief Valves on the basis that the proposed alternative provides an acceptable level of quality and safety. This 10 CFR 50.55a request has been authorized for other NRC licensees.

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NRR

Pursuant to 10 CFR 50.55a(a)(3)(ii), EOI, hereby requests NRC authorization or approval of the enclosed 10 CFR 50.55a requests associated with the Third IST Interval for RBS.

Relief Request No. VRR-RBS-2014-2 (Attachment 2) requests authorization to relax the requirements of ASME Code Case OMN-17, Revision 0, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves", for three of the Class 1 Main Steam Safety/Relief Valves on the basis that the hardship imposed by delaying the implementation of ASME Code Case OMN-17 for 24 months due to the refurbishment requirement does not produce a compensating increase in the level of quality and safety.

RBS requests the NRC authorize these 10 CFR 50.55a relief requests by February 1, 2015, to support implementation in the IST third ten-year interval.

As discussed above, the approval of the exemption request is required for the hardship request to be valid.

Attachment 1 to this letter is the ASME Code Case OMN-17 exemption request, Attachment 2 to this request is the hardship request to align the installed SRV testing to the revised testing frequency, and Attachment 3 is the Regulatory Commitment supporting this request.

If you have any questions or require additional information, please contact me.

Sincerely,

JAC/bmb

Attachments
1. Relief Request VRR-RBS-2014-1
2. Relief Request VRR-RBS-2014-2
3. Regulatory Commitments

RBF1-14-0051

cc: Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
1600 E. Lamar Blvd.
Arlington, TX 76011-4511

NRC Senior Resident Inspector
P. O. Box 1050
St. Francisville, LA 70775

U. S. Nuclear Regulatory Commission
Attn: Mr. Alan Wang
MS 0-8B1
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Louisiana Department of Environmental Quality
Office of Environmental Compliance
Radiological Emergency Planning and Response Section
JiYoung Wiley
P. O. Box 4312
Baton Rouge, LA 70821-4312

Public Utility Commission of Texas
Attn: PUC Filing Clerk
1701 N. Congress Avenue
P. O. Box 13326
Austin, TX 78711-3326

Attachment 1

RBG-47456

Relief Request VRR-RBS-2014-1

VALVE RELIEF REQUEST

NUMBER - VRR-RBS-2014-1

Use of Code Case OMN-17, Revision 0, on the Class 1 Main Steam Safety Relief Valves (SRVs)

Proposed Alternative In Accordance with 10 CFR 50.55a(a)(3)(i) On the basis that the proposed alternative provides an acceptable level of quality and safety.

ASME Code Component(s) Affected

Components:

B21-RVF041A	B21-RVF041B	B21-RVF041C	B21-RVF041D
B21-RVF041F	B21-RVF041G	B21-RVF041L	B21-RVF047A
B21-RVF047B	B21-RVF047C	B21-RVF047D	B21-RVF047F
B21-RVF051B	B21-RVF051C	B21-RVF051D	B21-RVF051G

Description:

River Bend Station (RBS), SRVs, Crosby Model HB-65-DF.

Component/System Function:

The Main Steam Safety/Relief (MSSR) System provides Reactor Pressure Vessel (RPV) overpressure protection and automatic depressurization of the Nuclear System by opening the Safety/Relief Valves (SRVs). RBS USAR Section 5.2.2 describes the three main protection functions of the SRVs:

Overpressure relief operation – The valves open automatically to limit a vessel pressure excursion during a postulated pressurization transient event.

Overpressure safety function – The valves function as safety valves and open to prevent reactor vessel overpressurization.

Depressurization operation – The ADS valves open automatically as part of the emergency core cooling system (ECCS), or can be operated manually for events involving small breaks in the nuclear system process barrier.

The valves must open in order to prevent over-pressurization of the reactor coolant system thereby preventing failure of the reactor system due to overpressure. The overpressure relief operation is self-actuated (Safety Mode). The valves will open automatically on receipt of a signal to limit a pressure rise (Relief Mode).

Seven (7) of the sixteen (16) SRVs are a designated part of the Automatic Depressurization System (ADS) Emergency Core Cooling System (ECCS) and must open to provide automatic reactor depressurization as a result of a small break in the

nuclear system for which the high pressure injection system cannot maintain reactor water level (ADS function).

In addition to the above, five (5) of the sixteen (16) SRVs are designated as part of the SRV Low-Low Set System. This system logic is called the Low-Low Set Relief logic.

Each protection function of the SRVs is to limit Reactor Coolant Pressure Boundary (RCPB) pressurization during upset conditions, with the exception of ADS. ADS functions to rapidly depressurize the reactor vessel to enable injection by the low pressure ECCS systems. The relief mode setpoints are lower than the safety mode set pressures to ensure sufficient margin between anticipated relief mode closing pressures and valve spring forces of the safety mode for proper seating of the valves upon receiving a close signal.

USAR Chapter 15.2 discusses the events which are expected to activate the primary system SRVs.

Applicable Code Edition and Addenda

ASME OM Code-2001 Edition, with Addenda through and including ASME OMb Code-2003.

Applicable Code Requirement(s)

Appendix I, Paragraph I-1320(a), 5-Year Test Interval, specifies that Class 1 pressure relief valves shall be tested at least once every 5 years, starting with initial electric power generation. No maximum limit is specified for the number of valves to be tested within each interval; a minimum of 20% of the valves from each valve group shall be tested within any 24-month interval. This 20% shall consist of valves that have not been tested during the current 5-year interval, if they exist. The test interval for any individual valve shall not exceed 5 years.

Reason for Request

The Crosby Model HB-65-DF SRVs have shown exemplary test history at RBS, as described in Table 2 below. However, given the current 24-month operating cycle for RBS, Entergy Operation Incorporated (EOI) is required to remove and test fifty percent of the SRVs every refueling outage (i.e. eight of 16), so that all valves are removed and tested every two refueling outages. This ensures compliance with the ASME OM Code requirements for testing Class 1 pressure relief valves within a five-year interval. Approval of extending the test interval to 6 years with a grace period of 6 months would reduce the minimum number of SRVs tested at RBS over three refueling outages by eight.

The ASME Code committees have developed Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves" which was published via ASME OM Code-2009 Edition. This Code Case has not been approved for use in US

NRC Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code, dated June 2003. The Code Case allows the Owner to extend the test frequencies for Class 1 pressure relief valves to a 72-month (6-year) test interval providing all the requirements of the Code Case are satisfied. The Code applicability specified in the Code Case is, in part, ASME OM Code 2001 Edition through the 2006 Addenda of Appendix I, Section I-1320. This is consistent with the Interval Code of record for RBS. RBS currently meets or exceeds all the requirements specified in Code Case OMN-17.

All SRVs are located in the upper elevations of the RBS Drywell. The major contributors to radiation exposure are the Main Steam Lines, including the SRVs, and the High Pressure/Low Pressure Core Spray lines passing through the area.
Removal of an installed SRV and installation of a replacement SRV requires installation of scaffolding, removal of insulation and various appurtenances on the SRV, and unbolting the SRV. Once unbolted, the SRV is maneuvered from its location and lowered to the grade elevation and transported through the drywell and containment equipment hatches. Each SRV weighs approximately 3000 pounds, and due to its size, a crew of five to seven personnel is necessary to safely move each valve.

Entergy has evaluated the historical cumulative radiation exposure at RBS for removal and replacement of SRVs from the last five RBS refueling outages. The work evolutions necessary to remove and replace these valves each refueling outage, which includes the removal and replacement of eight SRVs, are conducted under equivalent radiological conditions and with the same personnel requirements. This historical cumulative radiation exposure data is provided in Table 1.

Table 1
Cumulative Radiation Exposure

Outage	RF-17	RF-16	RF-15	RF-14	RF-13
# SRV's Replaced.	8	8	8	8	8
Person-Rem	4.178	3.192	6.494	4.026	5.872

Based on this data, Entergy has concluded that the expected cumulative radiation exposure to remove and replace a single SRV would be approximately 0.594 person-rem. The outage specific variability of cumulative radiation exposure is attributed to the location of a particular valve relative to higher radiation fields, the physical configuration of surrounding equipment for a particular valve, and the impact of outage-specific plant configurations. Therefore, absent the requested relief, replacement of eight incremental SRVs would result in approximately 4.752 additional person-rem over three refueling outages.

Proposed Alternative and Basis for Use

As an alternative to the Code required 5-year test interval per Appendix I, paragraph I-1320(a), RBS proposes that the Class 1 pressure relief valves be tested at least once every three refueling cycles (approximately 6 years/72 months) with a minimum of 20%

of the valves tested within any 24-month interval. This 20% would consist of valves that have not been tested during the current 72-month interval, if they exist. The test interval for any individual valve would not exceed 72 months except that a 6-month grace period is allowed to coincide with refueling outages to accommodate extended shutdown periods.

After as-found set pressure testing, the valves shall be disassembled and inspected to verify that parts are free of defects resulting from time-related degradation or service induced wear. As-left set pressure testing shall be performed following maintenance and prior to returning the valve to service. Each valve shall have been disassembled and inspected prior to the start of the 72 month interval. Disassembly and inspection performed prior to the implementation of Code Case OMN-17 may be used.

The relief valve testing and maintenance cycle at RBS consists of removal of the SRV complement requiring testing and transportation to an off-site test facility. Upon receipt at the off-site facility the valves are subject to an as-found inspection, seat leakage and set pressure testing. Prior to the return of a complement of SRVs for installation in the plant, the valves are disassembled and inspected to verify that internal surfaces and parts are free from defects or service induced wear prior to the start of the next test interval. During this process, anomalies or damage are identified and resolved. Damaged or worn parts, springs, gaskets and seals are replaced as necessary. The valve seats are lapped, if necessary. Following reassembly, the valve's set pressure is recertified with an acceptance criterion of ±1%. This existing process is in accordance with ASME OM Code Case OMN-17, Paragraphs (d) and (e).

RBS has reviewed the as-found set pressure test results for all of the SRV's tested since 2008 as detailed in Table 2. RBS has had only one as-found test failure since 2008 that exceeded the as-found acceptance criteria (+3%, -5%). The one as-found failure was in the negative (or conservative) direction.

TABLE 2 Summary of As-Found Test Results of SRV's

Valve ID	Set Pressure	As-Found Test Date	As-Found Set Pressure	Results (%)
N63800-02-0046	1210	2-8-2008	1157	-4.4
N63800-02-0045	1205	2-8-2008	1167	-3.2
N63800-02-0117	1210	2-8-2008	1138	-6.0
N63800-02-0037	1195	2-9-2008	1208	+1.1
N63800-02-0044	1205	2-9-2008	1199	-0.5
N63800-02-0100	1205	2-9-2008	1202	-0.2
N63800-02-0036	1195	2-10-2008	1201	+0.5
N63800-02-0034	1195	2-10-2008	1211	+1.3
N63800-02-0098	1205	10-1-2009	1203	-0.2
N63800-02-0109	1195	10-1-2009	1170	-2.1
N63800-02-0121	1210	10-2-2009	1198	-1.0
N63800-02-0120	1210	10-2-2009	1164	-3.8
N63800-02-0097	1205	10-3-2009	1162	-3.6

Valve ID	Set Pressure	As-Found Test Date	As-Found Set Pressure	Results (%)
N63800-02-0112	1195	10-3-2009	1183	-1.0
N63800-02-0111	1195	10-4-2009	1188	-0.6
N63800-02-0040	1195	10-4-2009	1154	-3.4
N63800-02-0035	1195	1-25-2011	1189	-0.5
N63800-02-0033	1195	1-25-2011	1193	-0.2
N63800-02-0038	1195	1-26-2011	1205	+0.8
N63800-02-0118	1210	1-26-2011	1156	-4.5
N63800-02-0115	1210	1-27-2011	1221	+0.9
N63800-02-0041	1205	1-27-2011	1203	-0.2
N63800-02-0043	1205	1-28-2011	1217	+1.0
N63800-02-0042	1205	1-28-2011	1211	+0.5
N63800-02-0110	1195	2-28-2013	1194	-0.1
N63800-02-0107	1195	2-28-2013	1181	-1.2
N63800-02-0095	1205	3-1-2013	1177	-2.3
N63800-02-0106	1195	3-1-2013	1193	-0.2
N63800-02-0081	1205	3-2-2013	1190	-1.2
N63800-02-0039	1195	3-2-2013	1185	-0.8
N63800-02-0117	1210	3-3-2013	1205	-0.4
N63800-02-0046	1210	3-3-2013	1219	+0.7

RBS submits that the proposed alternative of increasing the test interval for the Class 1 pressure relief valves from 5 years to 3 fuel cycles (approximately 6 years/72 months) would continue to provide an acceptable level of quality and safety while restoring the operational and maintenance flexibility that was lost when the 24-month fuel cycle created the unintended consequences of more frequent testing. This proposed alternative will continue to provide assurance of the valves' operational readiness and provides an acceptable level of quality and safety pursuant to 10 CFR 50.55a(a)(3)(i).

Duration of Proposed Alternative

This relief is requested for the remainder of the third ten-year IST interval, which began December 2, 2007 and is scheduled to end on December 1, 2017.

Precedents

In Reference 2, the NRC reviewed and approved relief requests for both Dresden Nuclear Power Station (DNPS), Units 2 and 3, and Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2 to extend their main steam safety valve (MSSV) test interval duration to 6.5 years for the remainder fourth 10-year Inservice Testing interval.

In Reference 3, the NRC reviewed and approved a relief request for Susquehanna Steam Electric Station (SSES), Units 1 and 2 to extend the MSSV test interval duration to six years for the entire third 10-year Inservice Testing interval.

In Reference 4, the NRC reviewed and approved a relief request for Nine Mile Point Nuclear Power Station, Unit 2 (NMP2) to extend the MSSV test interval duration to three refueling outages or approximately six years for the entire third 10-year Inservice Testing interval.

In Reference 5, the NRC reviewed and approved a relief request for Clinton Power Station to extend the SRV test interval duration to three refueling outages or approximately 6.5 years for the remainder of the second 10-year Inservice Testing interval.

In Reference 6, the NRC reviewed and approved a relief request for Monticello Nuclear Generating Station to extend the SRV test interval duration to three refueling outages or approximately 6 years, with a 6 month grace period, for the duration of the Fifth 10-year Inservice Testing interval.

This proposed relief request is consistent with the precedents, in that it will establish a test interval that would enable EOI to maintain a Crosby Model HB-65-DF SRV in service for three operating cycles, while also allowing adequate time to transport, test, and refurbish SRVs, at an external facility prior to reinstallation .

References

1. Code Case OMN-17, Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves

2. Letter from U. S. NRC to Mr. Charles G. Pardee (Exelon Generation Company, LIC), "Dresden Nuclear Power Station Units 2 and 3 – Relief Request No. RV-02C from 5-year Test Interval for Main Steam Safety Valves TAC Nos. MD8150 and MD8151) and Quad Cities Nuclear Power Station, Units 1 and 2 - Relief Requests No. RV-30E and RV-30F from 5-year test interval for Main Steam Safety Valves {TAC Nos. MD6682, MD6683, MD8241, and MD8242}," dated June 27, 2008

3. Letter from U. S. NRC to Mr. B. L. Shriver (PPL Susquehanna, LLC), "Susquehanna Steam Electric Station Units 1 and 2 -Third 10-year Interval Inservice Testing (IST) Program Plans (TAC Nos. MC3382, MC3383, MC3384, MC3385, MC3386, MC3387, MC3388, MC3389, MC4421, MC4422)," dated March 10, 2005.

4. Letter from U. S. NRC to Mr. J. H. Mueller (Niagara Mohawk Power Corporation), "Nine Mile Point Nuclear Power Station, Unit No. 2 – Alternative to American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Regarding Inservice Testing of Main Steam Safety/Relief Valves (TAC No. MB0290)," dated April 17, 2001

5. Letter from U.S. NRC to Mr. Charles G. Pardee (Exelon Generating Company LLC) "Clinton Power Station Unit NO. 1" – Request for relief from ASME OM Code 5-Year Test Interval for Safety Relief Valves (TAC NO. ME0044) dated August 26, 2009

6. Letter from U.S. NRC to Mr. Mark A. Schimmel (Northern States Power Company) "Monticello Nuclear Power Plant" – Relief from the Requirements of the American society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants for the Fifth 10-Year Inservice testing Program Interval (TAC Nos. ME8067, ME8088, ME8089, ME8090, ME8091, ME8092, ME8093, ME8094, ME8095, and ME8096)

Attachment 2

RBG-47456

Relief Request VRR-RBS-2014-2

VALVE RELIEF REQUEST

NUMBER - VRR-RBS-2014-2

Proposed Alternative In Accordance with 10 CFR 50.55a(a)(3)(ii) Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

ASME Code Component(s) Affected

Components:

Three of the following eight SRVs:

B21-RVF041B	B21-RVF041D	B21-RVF041F
B21-RVF047B	B21-RVF047D	B21-RVF047F
B21-RVF051B	B21-RVF051D	

Description:

River Bend Station (RBS), Safety Relief Valves (SRVs), Crosby Model HB-65-DF.

Component/System Function:

The Main Steam Safety/Relief (MSSR) System provides Reactor Pressure Vessel (RPV) overpressure protection and automatic depressurization of the Nuclear System by opening the Safety/Relief Valves (SRVs). RBS USAR Section 5.2.2 describes the three main protection functions of the SRVs:

Overpressure relief operation – The valves open automatically to limit a vessel pressure excursion during a postulated pressurization transient event.

Overpressure safety function – The valves function as safety valves and open to prevent reactor vessel overpressurization.

Depressurization operation – The ADS valves open automatically as part of the emergency core cooling system (ECCS), or can be operated manually for events involving small breaks in the nuclear system process barrier.

The valves must open in order to prevent over-pressurization of the reactor coolant system thereby preventing failure of the reactor system due to overpressure. The overpressure relief operation is self-actuated (Safety Mode). The valves will open automatically on receipt of a signal to limit a pressure rise (Relief Mode).

Seven (7) of the sixteen (16) SRVs are a designated part of the Automatic Depressurization System (ADS) Emergency Core Cooling System (ECCS) and must open to provide automatic reactor depressurization as a result of a small break in the nuclear system for which the high pressure injection system cannot maintain reactor water level (ADS function).

In addition to the above, five (5) of the sixteen (16) SRVs are designated as part of the SRV Low-Low Set System. This system logic is called the Low-Low Set Relief logic.

Each protection function of the SRVs is to limit Reactor Coolant Pressure Boundary (RCPB) pressurization during upset conditions, with the exception of ADS. ADS functions to rapidly depressurize the reactor vessel to enable injection by the low pressure ECCS systems. The relief mode setpoints are lower than the safety mode set pressures to ensure sufficient margin between anticipated relief mode closing pressures and valve spring forces of the safety mode for proper seating of the valves upon receiving a close signal.

USAR Chapter 15.2 discusses the events which are expected to activate the primary system SRVs.

SRV Operating Mechanics:

The safety mode of operation is initiated when the increasing static inlet pressure overcomes the restraining spring force acting against the inlet pressure and forces the disc insert to move in the opening direction. The lift increases as the steam is deflected upward via the disc ring and forces the disc insert to pop open to its full lift position as steam flow increases.

The relief mode of operation is initiated when an electrical signal energizes a solenoid, in turn opening an air valve, allowing pressurized air to flow into the air cylinder of the actuator, which pushes the piston inside the cylinder upwards. This upward action of the piston pushes a lever and lifting mechanism upward, which in turn pulls the spindle nut and disc assembly upward to open the valve to its full lift position.

The pneumatic operator is so arranged that it does not prevent the valve disc from lifting if steam inlet pressure reaches the spring lift pressure prior to the valve receiving a signal to lift in the relief mode. Additionally, if the valve lifts in the spring mode and subsequently receives a signal to lift in the relief mode, the pneumatic operator will respond as designed and act to hold the disc in the full lift position until a close signal is received. Therefore, SRV operation is ensured, regardless of actuation mode.

Applicable Code Edition and Addenda

ASME OM Code-2001 Edition, with Addenda through and including ASME OMb Code-2003.

Applicable Code Requirement(s)

Appendix I, Paragraph I-1320(a), 5-Year Test Interval, specifies that Class 1 pressure relief valves shall be tested at least once every 5 years, starting with initial electric power generation. No maximum limit is specified for the number of valves to be tested within each interval; a minimum of 20% of the valves from each valve group shall be tested within any 24-month interval. This 20% shall consist of valves that have not been tested during the current 5-year interval, if they exist. The test interval for any individual valve shall not exceed 5 years.

The ASME Code committees have developed Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves" which was published via ASME OM Code-2009 Edition. This Code Case has not been approved for use in US NRC Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code, dated

June 2003. The Code Case allows the Owner to extend the test frequencies for Class 1 pressure relief valves to a 72-month (6-year) test interval providing all the requirements of the Code Case are satisfied. The Code applicability specified in the Code Case is, in part, ASME OM Code 2001 Edition through the 2006 Addenda of Appendix I, Section I-1320. This is consistent with the Interval Code of record for RBS.

River Bend Station has requested relief (Valve Relief Request Number VRR-RBS-2014-1) to allow the use of ASME Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves" for the remainder of the third ten-year IST interval, which began December 2, 2007 and is scheduled to end on December 1, 2017.

In conjunction with VRR-RBS-2014-1, River Bend requests that this Relief Request is approved to forego the requirement to refurbish the valves prior to installation for three (3) of the sixteen (16) SRVs on a one time basis to allow the transition to the new requirements.

Reason for Request

ASME OM Code Case OMN-17 requires that each valve shall have been disassembled and inspected prior to the start of the 72 month interval to verify that parts are free of defects resulting from time-related degradation or service induced wear and that each valve shall have been disassembled and inspected prior to the start of the 72 month interval. Entergy is requesting relaxation of this requirement on a one time basis for three of the sixteen SRVs.

The eight replacement SRVs and actuators that were installed in RF-17 were refurbished just prior to installation, satisfying the requirements of OMN-17 for those valves. The actuators for the eight replacement SRVs that were installed in RF-16 were refurbished just prior to installation, which partially satisfies the requirements of OMN-17. However, the valves installed in RF-16 were not refurbished prior to installation. One of the SRVs installed in RF-16 was replaced during a forced outage in the summer of 2012 due to seat leakage. The replacement actuator and valve had not been refurbished prior to installation. All valves passed recertification testing prior to installation. The eight SRVs installed in RF-16 and currently scheduled for removal in RF-18 were last refurbished as shown in Table 1. Three of the valves are requested to remain in service for an additional 24 months to RF-19. The valve and actuator refurbishment histories for the SRVs are similar except for B21-RVF047F and B21-RVF051D. With those two exceptions, all of the actuators were refurbished in November 2010 and the valves were refurbished in December 2005 or January 2006. The three SRVs to remain will be selected to facilitate the outage schedule, but B21-RVF047F and B21-RVF051D will not be eligible for selection.

Table 1 - SRV REFURBISHMENT / INSTALLATION REFERENCE

Valve Serial Number	Valve Refurbishment Date	Actuator Refurbishment Date	Inservice Months By RF-18 (Feb. 2015)	Current Installed Location	ADS / LLS See Note 1	Comments
N63800-02-0040	1/2006	11/2010	89 Months	B21-RVF041B	ADS	Installed 4/2006 Removed 9/2009 Reinstalled 2/2011
N63800-02-0109	1/2006	11/2010	89 Months	B21-RVF041D	ADS	Installed 4/2006 Removed 9/2009 Reinstalled 2/2011
N63800-02-0111	12/2005	11/2010	89 Months	B21-RVF041F	ADS	Installed 4/2006 Removed 9/2009 Reinstalled 2/2011
N63800-02-0097	1/2006	11/2010	89 Months	B21-RVF047B	NA	Installed 4/2006 Removed 9/2009 Reinstalled 2/2011
N63800-02-0098	12/2005	11/2010	89 Months	B21-RVF047D	NA	Installed 4/2006 Removed 9/2009 Reinstalled 2/2011
N63800-02-0044	12/2003	11/2010	87 Months	B21-RVF047F	LLS	Installed 10/2004 Removed 1/2008 Reinstalled 2/2011
N63800-02-0115	9/2004	9/2004	85 Months	B21-RVF051D	LLS	Installed 10/2004 Removed 4/2006 Reinstalled 2/2008 Removed 1/2011 Reinstalled 6/2012
N63800-02-0120	1/2006	11/2010	89 Months	B21-RVF051B	LLS	Installed 4/2006 Removed 9/2009 Reinstalled 2/2011

Note 1: ADS = Automatic Depressurization System; LLS = Low-Low Set; NA = Not Applicable

All SRVs are located in the upper elevations of the RBS Drywell. The major contributors to radiation exposure are the Main Steam Lines, including the SRVs, and the High Pressure/Low Pressure Core Spray lines passing through the area.

Removal of an installed SRV and installation of a replacement SRV requires installation of scaffolding, removal of insulation and various appurtenances on the SRV, and unbolting the SRV. Once unbolted, the SRV is maneuvered from its location and lowered to the grade elevation and transported through the drywell and containment equipment hatches. Each SRV weighs approximately 3000 pounds, and due to its size, a crew of five to seven personnel is necessary to safely move each valve.

Entergy has evaluated the historical cumulative radiation exposure at RBS for removal and replacement of SRVs from the last five RBS refueling outages. The work evolutions necessary to remove and replace these valves each refueling outage, which includes the removal and replacement of eight SRVs, are conducted under equivalent radiological conditions and with the same personnel requirements. This historical cumulative radiation exposure data is provided in Table 2.

Table 2
Cumulative Radiation Exposure

Outage	RF-17	RF-16	RF-15	RF-14	RF-13
# SRV's Replaced	8	8	8	8	8
Person-Rem	4.178	3.192	6.494	4.026	5.872

Based on this data, Entergy has concluded that the expected cumulative radiation exposure to remove and replace a single SRV would be approximately 0.594 person-rem. The outage specific variability of cumulative radiation exposure is attributed to the location of a particular valve relative to higher radiation fields, the physical configuration of surrounding equipment for a particular valve, and the impact of outage-specific plant configurations. Therefore, absent the requested relief, replacement of the three SRVs would result in approximately 1.782 additional person-rem on a one time basis.

Proposed Alternative and Basis for Use

The requirement to refurbish the SRV's prior to reinstallation is a new requirement imposed by ASME OM Code Case OMN-17. Prior to its adoption, SRV's did not require disassembly and inspection unless test results required it to correct a non-conforming condition and/or determine the cause of failure.

RBS has reviewed the as-found set pressure test results for all of the SRV's tested since 2008 as detailed in Table 3. RBS has had only one as-found set pressure test failure since 2008 that exceeded the as-found acceptance criteria (+3%, -5%). The one as-found failure was in the negative (or conservative) direction. There have been no failures of the SRV actuators to function.

TABLE 3 Summary of As-Found Test Results of SRV's

Valve ID	Set Pressure	As-Found Test Date	As-Found Set Pressure	Results (%)
N63800-02-0046	1210	2-8-2008	1157	-4.4
N63800-02-0045	1205	2-8-2008	1167	-3.2
N63800-02-0117	1210	2-8-2008	1138	-6.0
N63800-02-0037	1195	2-9-2008	1208	+1.1
N63800-02-0044	1205	2-9-2008	1199	-0.5
N63800-02-0100	1205	2-9-2008	1202	-0.2
N63800-02-0036	1195	2-10-2008	1201	+0.5
N63800-02-0034	1195	2-10-2008	1211	+1.3
N63800-02-0098	1205	10-1-2009	1203	-0.2
N63800-02-0109	1195	10-1-2009	1170	-2.1
N63800-02-0121	1210	10-2-2009	1198	-1.0
N63800-02-0120	1210	10-2-2009	1164	-3.8
N63800-02-0097	1205	10-3-2009	1162	-3.6
N63800-02-0112	1195	10-3-2009	1183	-1.0
N63800-02-0111	1195	10-4-2009	1188	-0.6
N63800-02-0040	1195	10-4-2009	1154	-3.4
N63800-02-0035	1195	1-25-2011	1189	-0.5
N63800-02-0033	1195	1-25-2011	1193	-0.2
N63800-02-0038	1195	1-26-2011	1205	+0.8
N63800-02-0118	1210	1-26-2011	1156	-4.5
N63800-02-0115	1210	1-27-2011	1221	+0.9
N63800-02-0041	1205	1-27-2011	1203	-0.2
N63800-02-0043	1205	1-28-2011	1217	+1.0
N63800-02-0042	1205	1-28-2011	1211	+0.5
N63800-02-0110	1195	2-28-2013	1194	-0.1
N63800-02-0107	1195	2-28-2013	1181	-1.2
N63800-02-0095	1205	3-1-2013	1177	-2.3
N63800-02-0106	1195	3-1-2013	1193	-0.2
N63800-02-0081	1205	3-2-2013	1190	-1.2
N63800-02-0039	1195	3-2-2013	1185	-0.8
N63800-02-0117	1210	3-3-2013	1205	-0.4
N63800-02-0046	1210	3-3-2013	1219	+0.7

RBS submits that the proposed alternative of increasing the test interval for three of the Class 1 SRVs from 5 years to 3 fuel cycles (approximately 6 years/72 months) without disassembly and refurbishment prior to installation would continue to provide an acceptable level of quality and safety.

The hardship imposed by delaying the implementation of ASME Code Case OMN-17 for 24 months due to the refurbishment requirement does not produce a compensating increase in the level of quality and safety based on the history of the Crosby SRVs at River Bend Station.

This proposed alternative will continue to provide assurance of the valves' operational readiness and provides an acceptable level of quality and safety pursuant to 10 CFR 50.55a(a)(3)(ii).

Duration of Proposed Alternative

This relief is requested for the operating cycle starting in February 2015 until completion of the following refuel outage in March 2017, when the remaining three valves will have been replaced with valves that have been disassembled and inspected to ensure that parts are free of defects resulting from time-related degradation or service induced wear.

Precedents

None

References

1. Code Case OMN-17, Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves

2. RBS Request for Relief VRR-RBS-2014-1

Attachment 3

RBG-47456

Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
The three SRVs to remain will be selected to facilitate the outage schedule, but B21-RVF047F and B21-RVF051D will not be eligible for selection.	X		RF-18