



July 29, 2013

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

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

Subject: Request for Relief from ASME OM Code 5-Year Test Interval for Class 1
Safety Relief Valves/Safety Valves (SRVs/SVs) (Relief Request 01A-VRR-3)

Attached for your review is Relief Request 01A-VRR-3 associated with the fourth Inservice Testing (IST) interval for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. The fourth interval of the PBAPS, Units 2 and 3, IST program complies with the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants, 2001 Edition with Addenda through 2003 Addenda. This relief request would implement ASME OM Code Case OMN-17. We request your approval by July 29, 2014.

There are no regulatory commitments in this letter.

If you have any questions concerning this letter, please contact Tom Loomis at (610) 765-5510.

Respectfully,

James Barstow
Director, Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachment: Relief Request 01A-VRR-3

cc: Regional Administrator, Region I, USNRC
USNRC Senior Resident Inspector, PBAPS
Project Manager, USNRC

ATTACHMENT
RELIEF REQUEST 01A-VRR-3

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Proposed Alternative to Utilize Code Case OMN-17
In Accordance with 10 CFR 50.55a(a)(3)(i)

1. ASME Code Component(s) Affected

Pump	Description	Class	Category	Unit
RV-2-02-070A	Main Steam Safety Valve	1	C	2
RV-2-02-070B	Main Steam Safety Valve	1	C	2
RV-2-02-071A	Main Steam Safety Relief Valve	1	C	2
RV-2-02-071B	Main Steam Safety Relief Valve	1	C	2
RV-2-02-071C	Main Steam Safety Relief Valve	1	C	2
RV-2-02-071D	Main Steam Safety Relief Valve	1	C	2
RV-2-02-071E	Main Steam Safety Relief Valve	1	C	2
RV-2-02-071F	Main Steam Safety Relief Valve	1	C	2
RV-2-02-071G	Main Steam Safety Relief Valve	1	C	2
RV-2-02-071H	Main Steam Safety Relief Valve	1	C	2
RV-2-02-071J	Main Steam Safety Relief Valve	1	C	2
RV-2-02-071K	Main Steam Safety Relief Valve	1	C	2
RV-2-02-071L	Main Steam Safety Relief Valve	1	C	2
RV-3-02-070A	Main Steam Safety Valve	1	C	3
RV-3-02-070B	Main Steam Safety Valve	1	C	3
RV-3-02-071A	Main Steam Safety Relief Valve	1	C	3
RV-3-02-071B	Main Steam Safety Relief Valve	1	C	3
RV-3-02-071C	Main Steam Safety Relief Valve	1	C	3
RV-3-02-071D	Main Steam Safety Relief Valve	1	C	3
RV-3-02-071E	Main Steam Safety Relief Valve	1	C	3
RV-3-02-071F	Main Steam Safety Relief Valve	1	C	3
RV-3-02-071G	Main Steam Safety Relief Valve	1	C	3
RV-3-02-071H	Main Steam Safety Relief Valve	1	C	3
RV-3-02-071J	Main Steam Safety Relief Valve	1	C	3
RV-3-02-071K	Main Steam Safety Relief Valve	1	C	3
RV-3-02-071L	Main Steam Safety Relief Valve	1	C	3

Component/System Function

The ASME Code requires the reactor pressure vessel be protected from overpressure during upset conditions by self-actuated safety valves. As part of the nuclear pressure relief system, the size and number of Safety Relief Valves (SRVs) and Safety Valves (SVs) are selected such that peak pressure in the nuclear system will not exceed the ASME Code limits for the Reactor Coolant Pressure Boundary (RCPB).

The SRVs are Target Rock three-stage pilot operated safety/relief valves (11 SRVs per unit). The SVs are Dresser spring loaded safety valves (2 SVs per unit). The SRVs and SVs are located on the main steam lines between the reactor vessel and the first isolation valve within the drywell. The SRVs can actuate by either of two modes: the safety mode or the depressurization mode. In the safety mode, the pilot disc opens when steam

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pressure at the valve inlet expands the bellows to the extent that the hydraulic seating force on the pilot disc is reduced to zero. Opening of the pilot stage allows a pressure differential to develop across the second stage disc which opens the second stage disc, thus venting the chamber over the main valve piston. This causes a pressure differential across the main valve piston which opens the main valve. The SVs are spring loaded valves that actuate when steam pressure at the inlet overcomes the spring force holding the valve disc closed. This satisfies the Code requirement. The proposed changes do not impact the depressurization mode function of the SRVs.

2. Applicable Code Edition and Addenda

ASME OM Code-2001 Edition through 2003 Addendum

3. Applicable Code Requirement(s)

ASME OM Code Mandatory Appendix I, "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants," Section I-1320, "Test Frequencies, Class 1 Pressure Relief Valves," paragraph (a), "5-Year Test Interval," states that Class 1 pressure relief valves shall be tested at least once every 5 years.

4. Reason for Request

Section ISTC-3200, "Inservice Testing," states that inservice testing shall commence when the valves are required to be operable to fulfill their required function(s). Section ISTC-5240, "Safety and Relief Valves," directs that safety and relief valves meet the inservice testing requirements set forth in Appendix I of the ASME OM Code. Appendix I, Section I-1320(a) of the ASME OM Code states that Class 1 pressure relief valves shall be tested at least once every 5 years, starting with initial electric power generation. This section also states a minimum of 20 percent of the pressure relief valves are tested within any 24-month interval and that the test interval for any individual valve shall not exceed 5 years. The required tests ensure that the SRVs/SVs, which are located on each of the main steam lines between the reactor vessel and the first isolation valve within the drywell, will open at the pressures assumed in the safety analysis.

The SRVs/SVs have shown acceptable test history at Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3 as described in Section 5 below.

However, given the current 24-month operating cycle for each PBAPS unit, Exelon Generation Company, LLC (Exelon) is required to remove and test approximately half of the SRVs/SVs every refueling outage in order to ensure that all valves are removed and tested in accordance with the ASME OM Code requirements. This ensures compliance with the ASME OM Code requirements for testing Class 1 pressure relief valves within a 5 year interval. With the current 5 year interval, PBAPS is required to remove all 13 SRVs/SVs over 2 refuel cycles (i.e., 4 years). Approval of extending the test interval to 6.5 years would reduce the number of SRVs/SVs removed during an individual outage, such that the full scope of 13 SRVs/SVs are replaced over 3 refuel cycles (i.e., 6 years). Without Code relief, the incremental outage work due to the inclusion of the additional 2 - 3 SRVs/SVs per outage would be contrary to the principle of maintaining radiation dose As Low As Reasonably Achievable (ALARA). The removal and replacement of the additional

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2 - 3 SRVs/SVs per outage without Code relief results in an additional exposure of approximately 2½ - 4 Rem each outage.

In accordance with 10 CFR 50.55a(a)(3)(i), Exelon requests approval of an alternative to the 5 year test interval requirements of ASME OM Code, Appendix I, Section I-1320(a) for the SRVs/SVs at PBAPS, Units 2 and 3. Exelon requests that the test interval be increased from 5 years to 6.5 years. All other requirements of the applicable ASME OM Code would be met.

5. Proposed Alternative and Basis for Use

As an alternative to the Code required 5-year test interval per Appendix I, paragraph I-1320(a), Exelon proposes that the subject 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 and certification of the valve prior to installation.

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 PBAPS consists of removal of the SRV/SV 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 and set-pressure testing. Prior to the return of a complement of SRVs/SVs 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 for resolution. Damaged or worn parts, springs, gaskets and seals are replaced as necessary. Following reassembly, the valve's set pressure is recertified. This existing process is in accordance with ASME OM Code Case OMN-17 paragraphs (d) and (e). Exelon has reviewed the as-found set point test results for all of the SRVs/SVs tested since 2000 as detailed in Table 1.

Since 2000, the PBAPS, Units 2 and 3 SRVs/SVs have a history of 96 as-found lift tests. Of these 96 tests, 99% have been found within a +/-3% tolerance. During the PBAPS Fall 2012 Unit 2 refueling outage, one of the main steam SVs (S/N 1095) as-found lift pressure was identified to be 3.4% above the setpoint. An expanded scope removal of the other SV was performed with a satisfactory lift (the S/N 1093 as-found test (November 2012) was exactly at set pressure). An investigation was performed regarding the one valve that lifted outside of a +/-3% tolerance. It was identified that the previous certification practices were not using currently best known practices; procedure enhancements have been implemented to prevent future recurrence. Additionally, PBAPS has implemented

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enhanced subcomponent replacement and testing criteria to provide further assurance of repeatable as-found lift results.

Accordingly, the proposed alternative of increasing the test interval for the subject 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).

6. Duration of Proposed Alternative

The proposed alternative identified will be utilized during the fourth IST interval which began on August 15, 2008 and will conclude on August 14, 2018.

7. Precedents

Monticello Nuclear Generating Plant Relief Request VR-04 was approved in a Nuclear Regulatory Commission Safety Evaluation Report dated September 26, 2012 (ML12244A272).

Quad Cities Nuclear Power Station, Units 1 and 2 Relief Request RV-05 was approved in a Nuclear Regulatory Commission Safety Evaluation Report dated February 14, 2013 (ML13042A348).

**TABLE 1
RELIEF VALVE HISTORY**
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Valve Number	Install Unit	Install Location	As-Found Removal / Test Date	Set Pressure	As-Found Set Pressure	Deviation
15	2	71K	Sep-02	1155	1155	0.0%
	3	71K	Sep-07	1155	1167	1.0%
	2	71B	Sep-12	1155	1144	-1.0%
16	3	71E	Sep-01	1135	1149	1.2%
	2	71D	Feb-05	1135	1138	0.3%
	3	71E	Sep-09	1135	1129	-0.5%
17	2	71L	Sep-02	1145	1149	0.3%
	3	71G	Sep-07	1145	1152	0.6%
	2	71H	Sep-12	1145	1111	-3.0%
18	2	71E	Sep-00	1135	1129	-0.5%
	3	71D	Sep-03	1135	1136	0.1%
	2	71D	Sep-06	1135	1130	-0.4%
	3	71D	Jan-09	1135	1127	-0.7%
19	2	71C	Sep-02	1135	1128	-0.6%
	3	71C	Sep-07	1135	1149	1.2%
	2	71F	Sep-12	1135	1116	-1.7%
20	3	71G	Sep-03	1145	1130	-1.3%
	2	71J	Sep-10	1145	1137	-0.7%
21	2	71G	Sep-00	1145	1136	-0.8%
	3	71H	Sep-05	1145	1129	-1.4%
	3	71G	Sep-09	1145	1127	-1.6%
22	3	71F	Sep-03	1135	1126	-0.8%
	2	71F	Sep-08	1135	1133	-0.2%
23	3	71D	Sep-05	1135	1114	-1.9%
	2	71D	Sep-08	1135	1134	-0.1%
24	3	71B	Sep-03	1155	1139	-1.4%
	3	71A	Sep-09	1155	1130	-2.2%
	2	71A	Sep-12	1155	1121	-2.9%

**TABLE 1
RELIEF VALVE HISTORY**
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Valve Number	Install Unit	Install Location	As-Found Removal / Test Date	Set Pressure	As-Found Set Pressure	Deviation
25	3	71K	Sep-03	1155	1153	-0.2%
	2	71B	Sep-08	1155	1163	0.7%
	3	71B	Nov-10	1155	1144	-1.0%
73	3	71J	Sep-03	1145	1137	-0.7%
	3	71H	Sep-09	1145	1137	-0.7%
77	3	71L	Sep-03	1145	1151	0.5%
	2	71H	Sep-08	1145	1151	0.5%
78	2	71H	Sep-00	1145	1128	-1.5%
	2	71L	Sep-06	1145	1142	-0.3%
	3	71J	Sep-11	1145	1137	-0.7%
79	3	71A	Sep-01	1155	1130	-2.2%
	2	71A	Sep-06	1155	1161	0.5%
	3	71D	Sep-11	1135	1125	-0.9%
81	2	71D	Sep-02	1135	1126	-0.8%
	3	71F	Sep-07	1135	1148	1.1%
	2	71E	Sep-12	1135	1103	-2.8%
82	3	71G	Sep-01	1145	1151	0.5%
	3	71J	Sep-07	1145	1137	-0.7%
	2	71G	Sep-12	1145	1127	-1.6%
83	3	71D	Sep-01	1135	1135	0.0%
	2	71C	Sep-06	1135	1134	-0.1%
	3	71F	Sep-11	1135	1122	-1.1%
84	3	71C	Sep-03	1135	1144	0.8%
	2	71E	Sep-08	1135	1128	-0.6%
	3	71A	Sep-11	1155	1152	-0.3%
85	2	71J	Sep-02	1145	1141	-0.3%
	3	71L	Sep-07	1145	1149	0.3%
	2	71D	Sep-10	1135	1127	-0.7%

TABLE 1
RELIEF VALVE HISTORY
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Valve Number	Install Unit	Install Location	As-Found Removal / Test Date	Set Pressure	As-Found Set Pressure	Deviation
87	2	71H	Sep-04	1145	1149	0.3%
	2	71A	Sep-10	1155	1150	-0.4%
88	2	71B	Sep-04	1155	1152	-0.3%
	3	71B	Sep-09	1155	1158	0.3%
145	3	71H	Sep-01	1145	1130	-1.3%
	2	71G	Sep-08	1145	1169	2.1%
174	2	71A	Sep-02	1155	1144	-1.0%
	3	71B	Sep-05	1155	1136	-1.6%
	2	71K	Sep-10	1155	1165	0.9%
178	2	71G	Sep-04	1145	1144	-0.1%
	2	71L	Sep-10	1145	1157	1.0%
179	2	71B	Sep-00	1155	1170	1.3%
	3	71A	Sep-05	1155	1142	-1.1%
	3	71K	Sep-09	1155	1154	-0.1%
180	2	71E	Sep-04	1135	1124	-1.0%
	3	71D	Feb-08	1135	1135	0.0%
182	2	71F	Sep-04	1135	1138	0.3%
	2	71C	Sep-10	1135	1154	1.7%
183	2	71A	Sep-00	1155	1146	-0.8%
	2	71K	Sep-06	1155	1165	0.9%
190	2	71J	Sep-06	1145	1151	0.5%
	3	71L	Sep-11	1145	1129	-1.4%
193	2	71F	Sep-00	1135	1158	2.0%
	3	71E	Sep-05	1135	1145	0.9%
	3	71C	Sep-09	1135	1134	-0.1%
1093	2	70B	Sep-04	1260	1270	0.8%
	3	70B	Sep-09	1260	1268	0.6%

TABLE 1
RELIEF VALVE HISTORY
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Valve Number	Install Unit	Install Location	As-Found Removal / Test Date	Set Pressure	As-Found Set Pressure	Deviation
	2	70A	Nov-12	1260	1260	0.0%
1095	3	70B	Sep-01	1260	1268	0.6%
	3	70A	Sep-07	1260	1286	2.1%
	2	70B	Sep-12	1260	1303	* 3.4%
1102	2	70B	Sep-00	1260	1267	0.6%
	2	70A	Sep-06	1260	1288	2.2%
	3	70B	Sep-11	1260	1252	-0.6%
1103	2	70A	Sep-02	1260	1249	-0.9%
	2	70B	Sep-08	1260	1257	-0.2%
1104	2	70A	Sep-10	1260	1296	2.9%
	3	70B	Sep-05	1260	1260	0.0%
1105	3	70A	Sep-03	1260	1278	1.4%
	3	70A	Sep-09	1260	1265	0.4%

* S/N 1095 - As-found deviation greater than +3% is discussed in the Relief Request