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JUN 01 2010

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station OP1-17
Washington, DC 20555

**SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED REVISION 1 TO RELIEF REQUEST RR-02
TO PROVIDE A GRACE PERIOD FOR THE TEST
FREQUENCY FOR MAIN STEAM SAFETY
RELIEF VALVES FOR THIRD 10-YEAR INTERVAL
IN-SERVICE TESTING PROGRAM PLAN FOR
SUSQUEHANNA SES UNIT 1 AND UNIT 2
PLA-6614**

**Docket No. 50-387
and 50-388**

Pursuant to 10CFR50.55a(a)(3)(i), PPL Susquehanna, LLC (PPL) requests NRC approval of Revision 1 to Relief Request RR-02 to the Susquehanna SES Unit 1 and Unit 2 In-Service Testing Program Plans. This Relief Request revises approved Relief Request RR-02 to allow for a grace period of 6 months for the test frequency (in addition to the 6-year testing frequency which was previously approved) for the Main Steam Safety Relief Valves (MSRVs). These revisions are consistent with the grace period allowed by ASME Code Case OMN-17.

The Susquehanna SSES Units have forty (40) MSRVs that are shared between the units. At any one time, eight (8) MSRVs are not in service. The Code interprets that the test interval is six years from test to test before the valves would be declared inoperable. The spare MSRVs may have been tested up to 6 months prior to being placed in service. The 6-month grace period would accommodate an extended shutdown period or the interval between testing and being placed in service. The basis for the request is that the proposed alternative would provide an acceptable level of quality and safety.

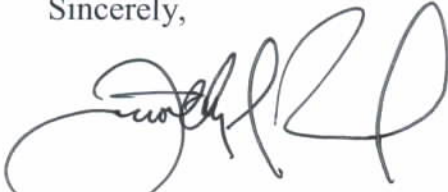
A review of Susquehanna SES test data shows that there were twenty (20) tests where the test interval was greater than 6 years. The results of these twenty (20) tests are consistent with the results of the total tests performed. Therefore, allowing a grace period of 6 months over the required 6-year test interval would have no adverse effects on the performance of the MSRVs.

Attachments 1 and 2 provide Revision 1 to Relief Request RR-02 for Unit 1 and Unit 2 respectively. Attachment 3 contains the MSRVs as-found testing results for the last 10 years. Attachment 4 contains a summary of the as-found setpoint failures for the MSRVs since initial operation.

PPL requests approval of this proposed relief request by February 1, 2011.

Should you have any questions, please contact Cornelius T. Coddington at (610) 774-4019.

Sincerely,



T. S. Rausch

Attachment 1 - Revision 1 to Unit 1 Relief Request RR-02

Attachment 2 - Revision 1 to Unit 2 Relief Request RR-02

Attachment 3 - Main Steam SRV As-Found Test Results for Last 10 Years

Attachment 4 - Summary of As-Found Setpoint Failures Since Initial Operation

Copy: NRC Region I
Mr. P. W. Finney, NRC Sr. Resident Inspector
Mr. R.V. Guzman, NRC Sr. Project Manager
Mr. R. R. Janati, DEP/BRP

cc:	C. T. Coddington	GENPL4
	M. H. Crowthers	GENPL4
	D. R. D'Angelo	NUCSB2
	J. P. Felock	NUCSB2
	J. M. Helsel	NUCSB3
	P. A. Horn (SRC)	NUCSB3
	D. G. Kostelnik	GENPL5
	G. G. Maertz	NUCSB2
	B. J. Payne	NUCSB2
	J. J. Petrilla III	NUCSA4
	L. S. Supon	NUCSB2
	T. G. Wales (DBD)	GENPL5
	NRA Files	GENPL4
	DCS	GENPL4

ATTACHMENT 1 TO PLA-6614

REVISION 1 TO

UNIT 1 RELIEF REQUEST RR-02

**RELIEF REQUEST RR02
REVISION 1 FOR UNIT 1**

Relief in accordance with 10 CFR 50.55a (a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. **ASME Code Component(s) Affected**

Valve	System	Category	Class
PSV141F013A	Nuclear Boiler	C	1
PSV141F013B	Nuclear Boiler	C	1
PSV141F013C	Nuclear Boiler	C	1
PSV141F013D	Nuclear Boiler	C	1
PSV141F013E	Nuclear Boiler	C	1
PSV141F013F	Nuclear Boiler	C	1
PSV141F013G	Nuclear Boiler	C	1
PSV141F013H	Nuclear Boiler	C	1
PSV141F013J	Nuclear Boiler	C	1
PSV141F013K	Nuclear Boiler	C	1
PSV141F013L	Nuclear Boiler	C	1
PSV141F013M	Nuclear Boiler	C	1
PSV141F013N	Nuclear Boiler	C	1
PSV141F013P	Nuclear Boiler	C	1
PSV141F013R	Nuclear Boiler	C	1
PSV141F013S	Nuclear Boiler	C	1

These valves are Main Steam Safety/Relief Valves. They provide overpressure protection for the reactor coolant pressure boundary to prevent unacceptable radioactive release and exposure to plant personnel.

2. **Applicable Code Requirement**

ASME OM Code 1998 Edition through Omb-2000 Addenda

I-1330(a), "Test Frequencies, Class 1 Pressure Relief Valves"

"Class 1 pressure relief valves shall be tested at least once every 5 years, starting with initial electric power generation."

3. **Basis for Relief**

Pursuant to 10CFR 50.55a, "Codes and Standards," paragraph (a)(3), relief is requested from the requirements of ASME OM Code, Appendix I, I-1330(a). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

During the second ten-year interval, Susquehanna removed and tested 8 of the 16 Main Steam Safety/Relief Valves (MSRV) during each refueling outage. This methodology meets the Code criteria of testing previously untested valves and permits the removal and replacement of weeping valves detected during the previous operating cycle. Weeping MSRVs are detected by monitoring tailpipe temperatures. If the tailpipe temperature exceeds 200 degrees Fahrenheit, then the relief valve is viewed as a weeper.

Without Code relief for 24-month fuel cycles, strict Code compliance would require Code testing of MSRVs to be completed within 5 years. This 5-year testing strategy does not account for any leaking valves that may need to be refurbished. Since Susquehanna's philosophy is to share spare valves between both units, (the valves that are removed from one unit are installed in the other unit's next refueling outage), this testing strategy could only be accomplished if a large population of MSRVs are tested each outage or additional spare valves are purchased. More than 8 valves would need to be sent to the offsite testing facility during a refueling outage. The testing and return of these valves would have to be completed expeditiously in order to not impact the refuel outage schedule duration. For this reason, additional expenditures would be incurred to purchase and test a greater number of valves each outage. Without Code relief, the additional outage work would be contrary to the principles of ALARA and could compromise radiation safety. Because of the location of certain MSRVs in the containment, interferences exist that would require the removal of more valves and piping for those valves that must be removed for the sample testing. This results in more radiation exposure to the maintenance personnel than is desirable.

With Code relief, the 16 MSRVs per unit can be tested within 6 years to complete the Code required testing for the total population and accommodate any weeping MSRVs. The increased testing over only 2 refuel cycles would result in no additional safety benefit to the plant. Susquehanna has had excellent performance with MSRVs over the last 10 years. Since 1987, Susquehanna has imposed a more conservative as-left leakage criterion on the testing facility than was specified in the General Electric Specification and incorporated in the PPL Specification for testing Crosby style relief valves. The criterion imposed on the test lab is 0 ml/5 minutes (via the purchase order) compared to a GE Specification "as-left" leakage criterion of 38 ml/5 minutes.

Additionally, a review of the set point testing results (for both units) for the time period from initial operation to the present (March 2010), which comprises 295 data points shows that the average of the set point deviation percentage is -0.781%. This indicates that, in general, the MSRVs tend to drift slightly downward, not upward. The calculated standard deviation from the average for the data was determined to be 1.555%. For those SRVs that were tested at a frequency of greater than 6 years, which comprises 20 data

points, the data shows that the average setpoint deviation percentage is -0.519% with a standard deviation of 1.45%.

Also, the testing history shows that since commercial operation, Susquehanna has had only two "as-found" set pressure test acceptance criteria failures (above +3%) of the tested valves, which required additional MSRVs to be tested.

As stated in ASME Code Case OMN-17, a 6-month grace period is allowed to coincide with refueling outages to accommodate extended shutdown periods. Testing the spare MSRVs within 6 months of being placed in service is equivalent to having the valves installed and the plant in an extended shutdown.

4. **Proposed Alternate Testing**

For the third ten-year interval, Susquehanna proposes to remove at least 20% of the 16 Main Steam Safety/Relief Valves (MSRV) plus weeping valves detected during the previous operating cycle and any valves required to be removed to access scheduled or weeping valves up to a maximum of 8 valves during each refueling outage.

Additional valves above the Code required minimum 20% will be tested if the as-found setpoint exceeds +3% of the nameplate. No additional valves will be tested if the as-found setpoint is below the nameplate setpoint. The additional valves tested will be from the initial population removed that are in excess of the 20% Code required minimum. If one of these valves fail, then all the MSRVs would be removed and tested.

Completion of Code testing will be accomplished over a period of 3 refuel cycles or 6 years. This approach results in maintenance and operational flexibility with the following benefits:

- Provides the ability to both test the Code required valves out of the population not yet tested and replace any weeping MSRVs.
- Maintains relatively leak-free MSRVs, thus minimizing the necessary run time of ECCS systems that provide suppression pool cooling.
- Consistent application of ALARA principles.
- Enhances equipment reliability.
- Results in minimal impact on outage durations.

The MSRVs will be tested such that a minimum of 20% of the valves (previously untested, if they exist) are tested every 24 months, such that all the valves will be tested within 3 refuel cycles. This proposal utilizes the same maintenance and testing approach that was applied in 18-month refuel cycles. This alternative frequency will continue to provide assurance of the valve operational readiness and provides an acceptable level of quality and safety.

Additionally, any failures, either seat leakage or pressure set point, occurring at the test facility, as well as weeping MSRVs that develop during the operating cycle will be documented by the corrective action program, evaluated and dispositioned accordingly.

Intervals between MSRV tests will be 6 years with a grace period of 6 months in order to accommodate refueling outage schedules.

5. **Duration of Relief Request**

This proposed alternative is requested for the duration of the 3rd Ten-Year Interval Susquehanna Steam Electric Station Unit 1 IST program (June 1, 2004 through May 31, 2014). This is similar to the relief request approved for the 2nd Ten-Year Interval Susquehanna Steam Electric Station Unit 1 IST Program (reference TAC No. MA0127, dated April 7, 1998).

ATTACHMENT 2 TO PLA-6614

REVISION 1 TO

UNIT 2 RELIEF REQUEST RR02

**RELIEF REQUEST RR02
REVISION 1 FOR UNIT 2**

Relief in accordance with 10 CFR 50.55a (a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. **ASME Code Component(s) Affected**

Valve	System	Category	Class
PSV241F013A	Nuclear Boiler	C	1
PSV241F013B	Nuclear Boiler	C	1
PSV241F013C	Nuclear Boiler	C	1
PSV241F013D	Nuclear Boiler	C	1
PSV241F013E	Nuclear Boiler	C	1
PSV241F013F	Nuclear Boiler	C	1
PSV241F013G	Nuclear Boiler	C	1
PSV241F013H	Nuclear Boiler	C	1
PSV241F013J	Nuclear Boiler	C	1
PSV241F013K	Nuclear Boiler	C	1
PSV241F013L	Nuclear Boiler	C	1
PSV241F013M	Nuclear Boiler	C	1
PSV241F013N	Nuclear Boiler	C	1
PSV241F013P	Nuclear Boiler	C	1
PSV241F013R	Nuclear Boiler	C	1
PSV241F013S	Nuclear Boiler	C	1

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Additionally, a review of the set point testing results (for both units) for the time period from initial operation to the present (March 2010), which comprises 295 data points shows that the average of the set point deviation percentage is -0.781%. This indicates that, in general, the MSRVs tend to drift slightly downward, not upward. The calculated standard deviation from the average for the data was determined to be 1.555%. For those SRVs that were tested at a frequency of greater than 6 years, which comprises 20 data

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Additionally, any failures, either seat leakage or pressure set point, occurring at the test facility, as well as weeping MSRVs that develop during the operating cycle will be documented by the corrective action program, evaluated and dispositioned accordingly.

Intervals between MSRV tests will be 6 years with a grace period of 6 months in order to accommodate refueling outage schedules.

5. **Duration of Relief Request**

This proposed alternative is requested for the duration of the 3rd Ten-Year Interval Susquehanna Steam Electric Station Unit 2 IST program (June 1, 2004 through May 31, 2014). This is similar to the relief request approved for the 2nd Ten-Year Interval Susquehanna Steam Electric Station Unit 2 IST Program (reference TAC No. MA2480, dated December 16, 1998).

ATTACHMENT 3 TO PLA-6614

**MAIN STEAM SRV AS-FOUND TEST
RESULTS FOR THE LAST 10 YEARS**

Main Steam SRV As-Found Test results for the Last 10 Years

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0019	03/30/1999	1195	1202	7	0.59
	03/24/2002	1195	1185	-10	-0.84
	04/22/2009 [#]	1195	1155	-40	-3.35
N63790-00-0020	03/25/2002 [#]	1205	1178	-27	-2.24
	04/22/2009 [#]	1205	1165	-40	-3.32
N63790-00-0021	04/06/2001	1195	1200	5	0.42
	03/21/2008 [#]	1195	1177	-18	-1.51
N63790-00-0022	04/01/1999	1205	1197	-8	-0.66
	03/24/2002	1205	1199	-6	-0.50
	04/29/2009 [#]	1205	1215	10	0.83
N63790-00-0023	03/30/2003	1205	1185	-20	-1.66
	03/22/2008	1205	1207	2	0.17
N63790-00-0024	03/28/2003	1205	1196	-9	-0.75
	03/21/2010 [#]	1205	1196	-9	-0.75
N63790-00-0025	03/30/2003	1205	1169	-36	-2.99
	03/21/2008	1205	1137	-68	-5.64
N63790-00-0026	03/31/2003	1195	1174	-21	-1.76
	03/23/2010 [#]	1195	1207	12	1.00

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0027	03/24/2002	1195	1162	-33	-2.76
	04/22/2009 [#]	1195	1204	9	0.75
N63790-00-0028	04/06/2001	1195	1169	-26	-2.18
	03/16/2006	1195	1190	-5	-0.42
N63790-00-0029	04/01/1999	1205	1232	27	2.24
	03/26/2004	1195	1188	-7	-0.59
	03/13/2010	1195	1208	13	1.09
N63790-00-0030	04/13/2000	1195	1186	-9	-0.75
	03/16/2007 [#]	1195	1190	-5	-0.42
N63790-00-0031	03/31/2003	1195	1180	-15	-1.26
	03/17/2006	1195	1166	-29	-2.43
N63790-00-0032	04/06/1999	1205	1184	-21	-1.74
	03/25/2004	1205	1176	-29	-2.41
	03/13/2010	1205	1224	19	1.58
N63790-00-0033	03/31/2003	1195	1190	-5	-0.42
	03/21/2010 [#]	1195	1225	30	2.51
N63790-00-0034	03/11/2005	1195	1188	-7	-0.59
	03/22/2010	1195	1188	-7	-0.59

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0081	04/06/2001	1205	1190	-15	-1.24
	03/15/2006	1195	1154	-41	-3.43
N63790-00-0082	03/31/2003	1205	1200	-5	-0.41
	03/21/2008	1205	1159	-46	-3.82
N63790-00-0083	03/28/2003 [#]	1175	1161	-14	-1.19
	03/20/2010 [#]	1175	1175	0	0.00
N63790-00-0084	03/28/2004 [#]	1195	1184	-11	-0.92
N63790-00-0085	04/14/2000	1175	1143	-32	-2.72
	03/09/2005	1175	1195	20	1.70
	04/23/2009	1175	1123	-52	-4.42
N63790-00-0086	03/29/1999	1195	1166	-29	-2.43
	03/28/2004	1175	1191	16	1.36
N63790-00-0087	04/05/2001	1195	1202	7	0.59
	03/17/2006	1205	1191	-14	-1.16
N63790-00-0088	04/07/2001	1205	1185	-20	-1.66
	03/22/2008 [#]	1205	1205	0	0.00
N63790-00-0089	04/07/2001	1205	1185	-20	-1.66
	03/16/2006	1205	1210	5	0.41

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0090	03/27/2004 [#]	1205	1195	-10	-0.83
N63790-00-0091	03/29/2004 [#]	1205	1193	-12	-1.00
	04/23/2009	1205	1187	-18	-1.49
N63790-00-0092	03/31/1999	1195	1179	-16	-1.34
	03/30/2004	1195	1200	5	0.42
N63790-00-0093	04/14/2000	1205	1191	-14	-1.16
	03/10/2005	1205	1154	-51	-4.23
	03/20/2010	1205	1153	-52	-4.32
N63790-00-0094	03/30/1999	1205	1224	19	1.58
	03/26/2004	1205	1174	-31	-2.57
N63790-00-0095	04/12/2000	1205	1230	25	2.07
	03/11/2005	1205	1199	-6	-0.50
	03/19/2010	1205	1173	-32	-2.66
N63790-00-0096	04/13/2000	1205	1204	-1	-0.08
	03/09/2005	1205	1194	-11	-0.91
	03/23/2010	1205	1160	-45	-3.73
N63790-00-0112	03/26/2002 [#]	1205	1220	15	1.24
	03/15/2007	1205	1209	4	0.33

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0113	04/06/2001	1175	1193	18	1.53
	03/21/2008 [#]	1175	1164	-11	-0.94
N63790-00-0128	03/23/2002	1175	1193	18	1.53
	03/15/2007	1175	1184	9	0.77
N63790-00-0129	04/12/2000	1205	1192	-13	-1.08
	03/16/2007 [#]	1205	1199	-6	-0.50
N63790-00-0130	03/29/1999 [#]	1205	1208	3	0.25
	03/24/2002	1205	1184	-21	-1.74
	03/15/2007	1205	1145	-60	-4.98
N63790-00-0131	04/04/2001	1205	1219	14	1.16
	03/15/2006	1205	1215	10	0.83
N63790-00-0132	04/12/2000	1195	1154	-41	-3.43
	03/10/2005	1195	1134	-61	-5.10
	03/14/2010	1195	1180	-15	-1.26
N63790-00-0133	03/24/2002	1195	1208	13	1.09
	03/14/2007	1195	1190	-5	-0.42

- greater than 6 years since the previous test.

ATTACHMENT 4 TO PLA-6614

**SUMMARY OF AS-FOUND SETPOINT
FAILURES
SINCE INITIAL OPERATION**

Summary of As-Found Setpoint Failures Since Initial Operation

The data for the twenty-four (24) failed Main Steam SRV as-found setpoint tests (i.e., the Code tolerance of plus or minus 3% was exceeded) is summarized below:

- Twenty-two (22) SRV as-found setpoint tests failed on the low side (setpoint less than the -3% tolerance). The following summarizes the test data for these SRVs.

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0019	08/21/1985	1195	1158	-37	-3.10
	04/22/2009	1195	1155	-40	-3.35
N63790-00-0020	04/22/2009	1205	1165	-40	-3.32
N63790-00-0021	09/21/1996	1195	1159	-36	-3.01
N63790-00-0022	10/13/1987	1175	1136	-39	-3.32
N63790-00-0024	04/05/1995	1175	1133	-42	-3.57
N63790-00-0025	03/21/2008	1205	1137	-68	-5.64
N63790-00-0030	10/12/1987	1175	1139	-36	-3.06
N63790-00-0081	03/15/2006	1195	1154	-41	-3.43
N63790-00-0082	03/21/2008	1205	1159	-46	-3.82
N63790-00-0085	03/31/1992	1175	1109	-66	-5.62
	04/23/2009	1175	1123	-52	-4.42
N63790-00-0089	01/22/1993	1185	1147	-38	-3.21

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0090	03/31/1992	1185	1143	-42	-3.54
N63790-00-0091	09/10/1986	1195	1155	-40	-3.35
N63790-00-0093	03/10/2005	1205	1154	-51	-4.23
	03/20/2010	1205	1153	-52	-4.32
N63790-00-0096	03/23/2010	1205	1160	-45	-3.73
N63790-00-0113	09/10/1987	1146	1094	-52	-4.54
N63790-00-0130	03/15/2007	1205	1145	-60	-4.98
N63790-00-0132	04/12/2000	1195	1154	-41	-3.43
	03/10/2005	1195	1134	-61	-5.10

The cause of these failures was determined to be setpoint drift or seat leakage.

- Two (2) SRV as-found setpoint tests failed on the high side (setpoint greater than the +3% tolerance). The following summarizes the test data for these SRVs.

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0094	06/18/1991	1205	1244	39	3.24
N63790-00-0130	12/14/1990	1185	1235	50	4.22

No high side as-found setpoint test failures have occurred since flexi discs have been installed in the SRVs at Susquehanna SES.