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

**SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED ONE TIME RELIEF REQUEST TO EXTEND
THE TEST FREQUENCY FOR MAIN STEAM SAFETY
RELIEF VALVES FOR THIRD 10-YEAR INTERVAL
IN-SERVICE TESTING PROGRAM PLAN FOR
SUSQUEHANNA SES UNIT 2
PLA-6595**

Docket No. 50-388

Pursuant to 10CFR50.55a(a)(3)(i) PPL Susquehanna, LLC (PPL) requests NRC approval of Relief Request RR-07 to the Susquehanna SES Unit 2 In-Service Testing Program Plan. This Relief Request is an alternative for already approved Relief Request RR-02. Relief Request RR-07 would extend the test interval for certain Main Steam Safety Relief Valves (SRVs) beyond 6 years for five SRVs on a one-time basis to allow the testing to be performed during the Spring 2011 refueling outage. The basis for the request is that the proposed alternative provides an acceptable level of quality and safety.

PPL requests approval of this proposed relief request by July 1, 2010.

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

Sincerely,

T. S. Rausch

AD47
NRC

Enclosure 1 – Revision 0 to Relief Request RR-07

Copy: NRC Region I
Mr. P. W. Finney, NRC Resident Inspector
Mr. R. R. Janati, DEP/BRP
Mr. A. Patel, NRC Sr. Resident Inspector
Mr. B. K. Vaidya, NRC Project Manager

ENCLOSURE 1 TO PLA-6595

REVISION 0 TO

RELIEF REQUEST RR-07

RELIEF REQUEST RR-07

Relief in accordance with 10CFR50.55a(a)(3)(i)
Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected:

Serial Number/ Component ID	Class	Category	Label
N63790-00-0086/ PSV241F013A	1	C	MAIN STEAM SRV
N63790-00-0084/ PSV241F013E	1	C	MAIN STEAM SRV
N63790-00-0092/ PSV241F013J	1	C	MAIN STEAM SRV (ADS)
N63790-00-0094/ PSV241F013M	1	C	MAIN STEAM SRV (ADS)
N63790-00-0090/ PSV241F013P	1	C	MAIN STEAM SRV

These valves are Main Steam Safety/Relief Valves. They provide overpressure protection for the reactor coolant pressure boundary to prevent failure of the reactor vessel pressure boundary that could result in unacceptable radioactive release and exposure to plant personnel. Two of these five valves are associated with the Automatic Depressurization System (ADS).

2. Applicable Code Requirement:

PPL Susquehanna, LLC (PPL) Relief Request RR-02, authorized by Reference 1, provides an alternative to ASME OM Code 1998 Edition through OMB-2000 Addenda, paragraph I-1330, "Test Frequencies, Class 1 Pressure Relief Valves." The alternative requires that Class 1 pressure relief valves be tested at least once every three refueling cycles. It also requires a minimum of 20% of the valves from each valve group to be tested within any 24-month interval. This 20 % shall consist of valves that have not been tested during the current three-cycle interval, if they exist. The test interval for any individual valve shall not exceed three refueling cycles.

3. Basis for Relief:

OM Code-1998, Appendix I, I-1300, "Inservice Testing," states the inservice testing shall commence when the valves are required to be operable to fulfill their required function(s). Paragraph I-1330(a), "Test Frequencies, Class 1 Pressure Relief Valves," states that Class 1 pressure relief valves shall be tested at least once every 5 years, starting with initial electric power generation. The alternative to Paragraph I-1330(a), in PPL's Relief Request RR-02, requires that the test interval for any individual Class 1 pressure relief valve shall not exceed three refueling cycles. The required testing ensures that the Main Steam SRVs will open at the pressures assumed

in the safety analysis. These valves are located on the main steam lines between the reactor vessel and the inboard main steam isolation valves within the drywell.

Pursuant to 10 CFR 50.55a(a)(3)(i), PPL requests a one-time relief from (modification to) the requirements of the approved alternative described in Relief Request RR-02 for five (5) of the sixteen (16) Main Steam SRVs. Relief is requested until completion of the Spring 2011 refueling outage.

During a review of the industry operating experience, a discrepancy was identified relative to compliance with the 10 CFR 50.55a Relief Request RR-02 maximum test interval for an individual SRV of three refueling cycles. The ASME OM Code interpretation (01-18) indicated that implementation of the test interval should be based upon a "test-to-test" duration. The historical method has been to use an "installation-to-test" duration and to ensure that all installed Main Steam SRVs would not exceed the three refueling cycle duration (assuming a 24-month period for each of the refueling cycles). However, utilizing the "test-to-test" interpretation, the three-refueling-cycle interval will expire for five Main Steam SRVs (Serial Numbers N63790-00-0086, N63790-00-0084, N63790-00-0092, N63790-00-0094 and N63790-00-0090) prior to the next scheduled refueling outage in Spring 2011. These five SRVs are also listed in Table 1. The provisions of TS SR 3.0.3 cannot be applied to these five SRVs since the surveillance interval has not yet been exceeded. The Spring 2011 refueling outage is the earliest opportunity to address the discrepancy without requiring Susquehanna SES Unit 2 to enter a forced shutdown to perform these SRV tests.

The basis for this request is that compliance with the requirements in Relief Request RR-02 would result in a hardship without a compensating increase in the level of quality or safety. Technical Specification (TS) 3.4.3 requires that if one or more required SRVs are inoperable, actions must be taken to shut down the reactor. Susquehanna SES is equipped with sixteen (16) SRVs, of which 14 are required. Without approval of this relief request, five (5) SRVs will need to be declared inoperable prior to the start of the 2011 refueling outage (when they are scheduled to be replaced) for failure to comply with TS SR 3.4.3.1. This would necessitate a forced shutdown of the unit for testing and replacement of the SRVs.

The Main Steam SRVs are located inside the drywell in a high radiation area. The additional dose for the removal, testing, and re-installation of an SRV, including scaffolding erection/removal and insulation removal/re-installation, would be incurred. If Susquehanna Unit 2 were shutdown before the Spring 2011 refueling outage to perform SRV testing, an additional six SRVs would need to be tested during the refueling outage to meet the requirement of Relief Request RR-02. Thus, additional radiation exposure would be realized if the proposed alternative is not authorized.

Based on the above discussion, and consistent with the guidance in NUREG-1482, Revision 1, Section 2.5, authorization of this one-time request will avoid undue hardship in the form of an unnecessary plant shutdown per TS 3.4.3 and will avoid the additional dose incurred for the replacement and testing of the SRVs.

4. Proposed Alternative and Basis for Use:

For the five Main Steam SRVs impacted, PPL Susquehanna, LLC (PPL) proposes to extend the maximum test interval by varying amounts beyond the six year frequency interval as measured from the specified "Last Tested Date (listed in Table 1) to allow testing to be performed during the Spring 2011 refueling outage. During the Spring 2011 refueling outage, PPL will remove and test all five impacted Main Steam SRVs. The removed valves will be replaced with recently tested valves.

Additionally, as required by the Code, if the as-found set-pressure of any SRV is found to be > 3% above the nameplate set-pressure, two additional SRVs from the same valve group will be tested. If the as-found set-pressure of any of these additional SRVs is found to be > 3% above the nameplate set-pressure, then all remaining SRVs of that same valve group shall be tested.

The basis for this request is as follows:

A review of the setpoint testing results for the time period from initial operation of both Unit 1 and Unit 2 to the present, which comprises 284 data points, shows that the average setpoint change is -0.79%. This slight deviation is well within the requirement specified in TS SR 3.4.3.1 that the as-found setpoint be within plus or minus 1% of the nameplate, and well within the as-found Code requirement of plus or minus 3%. The number of as-found setpoints greater than 1% above the nameplate set pressure was 34. Ten (10) were greater than 2% above the nameplate. Two (2) were greater than the Code tolerance of +3% for the as-found setpoint test, requiring testing of additional SRVs.

The testing data indicates that setpoint history has been good. Twenty (20) valves experienced as-found test results greater than 3% below the nameplate set pressure. Only two (2) valves have experienced as-found test results greater than 3% above the nameplate set pressure. The SRV as-found set pressure test data for the last 10 years is summarized in Table 2. Data on the twenty-two (22) Main Steam SRV as-found setpoint test failures identified above is summarized in Attachment 1 to this relief request.

A 24-month fuel cycle has been implemented at Susquehanna SES Unit 2. Each refueling outage, PPL removes and tests six of the sixteen Main Steam SRVs so that all valves are removed and are tested every three refueling outages. Subsequent to completion of as-found testing, each SRV in the removed complement is disassembled to perform an inspection and maintenance activities, including disc and seat inspection for evidence of degradation such as leakage or misalignment. Any SRV that failed the as-found set pressure test is inspected to determine the cause.

All adverse conditions are corrected, the disc and seats are lapped, and the valve is reassembled. Each SRV is then recertified for service through inspection and testing consistent with ASME OM Code requirements, including set pressure, seat tightness, stroke time and disc lift verifications, solenoid coil pick up/drop out, and air actuator integrity tests.

After recertification testing, the SRVs are stored in controlled areas at the recertification vendor facility and at Susquehanna SES.

The SRV as-found set pressure test data in Table 2 demonstrates that the current maintenance practices outlined above have been effective, and that pre-installation SRV storage has had no significant impact on SRV test results. Only one as-found setpoint test failure has been experienced during the time period encompassed by the data in Table 2. Note that testing performed on SRVs removed during these refueling outages utilized nitrogen, with a correlated set pressure. The data in Table 2 also illustrates that SRVs that have exceeded 6 years between tests have still demonstrated acceptable as-found setpoint test results.

Based on the above cited valve performance history, SRV maintenance practices and the controlled storage environment for the stored SRVs, there is continued assurance of valve operational readiness, as required by ASME OM Code-1998, Appendix I, paragraph I-1330(a) and Relief Request RR-02, even given the requested one-time extension of the test interval as outlined in this request. Therefore, PPL has concluded that the proposed alternative provides an acceptable level of quality and safety.

5. Duration of Proposed Alternative:

This proposed alternative is requested until the completion of Susquehanna Unit 2 Spring 2011 refueling outage.

6. Precedents:

Similar relief requests have been approved for Susquehanna SES and other plants are listed below:

- Letter from H. Chemoff (USNRC) to C. Pardee (Exelon), "Peach Bottom Atomic Power Station, Units 2.000 and 3 – Requests for Relief Associated with the Fourth Inservice Testing Interval (TAC Nos. MD7461 and MD7462)," dated September 3, 2008 (Relief Request Number 01A-VRR-1).
- Letter from R. Gibbs (USNRC) to C. Crane (Exelon), "Dresden Nuclear Power Station, Unit 2 - Request for Relief from ASME OM Code 5-Year Test Interval Requirements (TAC No. MD5959)," dated September 20, 2007 (Relief Request Number RV-02B).
- Letter from N. L. Salgado (USNRC) to S. Belcher (NMPNS), "Nine Mile Point Nuclear Station, Unit 2 – request for Alternative No. MSS-VR-02 Main Steam Safety Relief Valve Test Interval Extension (TAC No. ME2130)" dated September 23, 2009.

- Letter from N. L. Salgado (USNRC) to T. S. Rausch (PPL), “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 (TAC No. ME2629 and ME2888),” dated January 7, 2010.

7. References:

1. Letter from R. Laufer (USNRC) to B. L. Shriver (PPL), “Susquehanna Steam Electric Station, Unit 1 and 2 – Third 10 Year Internal Inservice Testing (IST) Program Plans (TAC Nos. MC3382, MC3383, MC 3384, MC3385, MC3386, MC3387, MC3388, MC3389, MC4421, MC4422),” dated March 10, 2005.

Table 1: Currently Installed Main Steam SRVs in Susquehanna SES Unit 2

<i>MSRV Installation Position</i>	<i>Installed Valve Serial Number</i>	<i>Design Safety Actuation Setpoint (psig)</i>	<i>"As Left" Safety Actuation Setpoint (psig)</i>	<i>Date MSRV "As Left" Safety Actuation Setpoint Last Tested</i>
A	N63790-00-0086	1175	1182	08/25/2004
B	N63790-00-0023	1205	1199	09/22/2008
C	N63790-00-0028	1195	1198	07/25/2006
D	N63790-00-0113	1175	1181	09/24/2008
E	N63790-00-0084	1195	1192	08/19/2004
F	N63790-00-0087	1205	1204	07/27/2006
G	N63790-00-0082	1205	1207	12/04/2008
H	N63790-00-0031	1195	1195	07/24/2006
J	N63790-00-0092	1195	1196	08/26/2004
K	N63790-00-0025	1205	1204	09/27/2008
L	N63790-00-0021	1195	1192	12/05/2008
M	N63790-00-0094	1205	1210	08/30/2004
N	N63790-00-0081	1195	1203	07/27/2006
P	N63790-00-0090	1205	1203	08/19/2004
R	N63790-00-0089	1205	1207	07/26/2006
S	N63790-00-0131	1205	1204	07/28/2006

Table 2: 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	3/30/1999	1195	1202	7	0.59
	3/24/2002	1195	1185	-10	-0.84
	4/22/2009	1195	1155	-40	-3.35
N63790-00-0020	3/25/2002	1205	1178	-27	-2.24
	4/22/2009	1205	1165	-40	-3.32
N63790-00-0021	4/6/2001	1195	1200	5	0.42
	3/21/2008	1195	1177	-18	-1.51
N63790-00-0022	4/1/1999	1205	1197	-8	-0.66
	3/24/2002	1205	1199	-6	-0.50
	4/29/2009	1205	1215	10	0.83
N63790-00-0023	3/30/2003	1205	1185	-20	-1.66
	3/22/2008	1205	1207	2	0.17
N63790-00-0024	3/28/2003	1205	1196	-9	-0.75
N63790-00-0025	3/30/2003	1205	1169	-36	-2.99
	3/21/2008	1205	1137	-68	-5.64
N63790-00-0026	3/31/2003	1195	1174	-21	-1.76
N63790-00-0027	3/24/2002	1195	1162	-33	-2.76
	4/22/2009	1195	1204	9	0.75

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0028	4/6/2001	1195	1169	-26	-2.18
	3/16/2006	1195	1190	-5	-0.42
N63790-00-0029	4/1/1999	1205	1232	27	2.24
	3/26/2004	1195	1188	-7	-0.59
N63790-00-0030	4/13/2000	1195	1186	-9	-0.75
	3/16/2007	1195	1190	-5	-0.42
N63790-00-0031	3/31/2003	1195	1180	-15	-1.26
	3/17/2006	1195	1166	-29	-2.43
N63790-00-0032	4/6/1999	1205	1184	-21	-1.74
	3/25/2004	1205	1176	-29	-2.41
N63790-00-0033	3/31/2003	1195	1190	-5	-0.42
N63790-00-0034	3/11/2005	1195	1188	-7	-0.59
N63790-00-0081	4/6/2001	1205	1190	-15	-1.24
	3/15/2006	1195	1154	-41	-3.43
N63790-00-0082	3/31/2003	1205	1200	-5	-0.41
	3/21/2008	1205	1159	-46	-3.82
N63790-00-0083	3/28/2003	1175	1161	-14	-1.19

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0084	3/28/2004	1195	1184	-11	-0.92
N63790-00-0085	4/14/2000	1175	1143	-32	-2.72
	3/9/2005	1175	1195	20	1.70
	4/23/2009	1175	1123	-52	-4.42
N63790-00-0086	3/29/1999	1195	1166	-29	-2.43
	3/28/2004	1175	1191	16	1.36
N63790-00-0087	4/5/2001	1195	1202	7	0.59
	3/17/2006	1205	1191	-14	-1.16
N63790-00-0088	4/7/2001	1205	1185	-20	-1.66
	3/22/2008	1205	1205	0	0.00
N63790-00-0089	4/7/2001	1205	1185	-20	-1.66
	3/16/2006	1205	1210	5	0.41
N63790-00-0090	3/27/2004	1205	1195	-10	-0.83
N63790-00-0091	3/29/2004	1205	1193	-12	-1.00
	4/23/2009	1205	1187	-18	-1.49
N63790-00-0092	3/31/1999	1195	1179	-16	-1.34
	3/30/2004	1195	1200	5	0.42

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0093	4/14/2000	1205	1191	-14	-1.16
	3/10/2005	1205	1154	-51	-4.23
N63790-00-0094	3/30/1999	1205	1224	19	1.58
	3/26/2004	1205	1174	-31	-2.57
N63790-00-0095	4/12/2000	1205	1230	25	2.07
	3/11/2005	1205	1199	-6	-0.50
N63790-00-0096	4/13/2000	1205	1204	-1	-0.08
	3/9/2005	1205	1194	-11	-0.91
N63790-00-0112	3/26/2002	1205	1220	15	1.24
	3/15/2007	1205	1209	4	0.33
N63790-00-0113	4/6/2001	1175	1193	18	1.53
	3/21/2008	1175	1164	-11	-0.94
N63790-00-0128	3/23/2002	1175	1193	18	1.53
	3/15/2007	1175	1184	9	0.77
N63790-00-0129	4/12/2000	1205	1192	-13	-1.08
	3/16/2007	1205	1199	-6	-0.50
N63790-00-0130	3/29/1999	1205	1208	3	0.25
	3/24/2002	1205	1184	-21	-1.74
	3/15/2007	1205	1145	-60	-4.98

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0131	4/4/2001	1205	1219	14	1.16
	3/15/2006	1205	1215	10	0.83
N63790-00-0132	4/12/2000	1195	1154	-41	-3.43
	3/10/2005	1195	1134	-61	-5.10
N63790-00-0133	3/24/2002	1195	1208	13	1.09
	3/14/2007	1195	1190	-5	-0.42

Attachment 1: Summary of As-Found Setpoint Failures Since Initial Operation

The data for the twenty-two (22) failed Main Steam SRV as-found setpoint tests (i.e., the Code tolerance of plus or minus 3% was exceeded) is summarized below:

- Twenty (20) 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	8/21/1985	1195	1158	-37	-3.10
	4/22/2009	1195	1155	-40	-3.35
N63790-00-0020	4/22/2009	1205	1165	-40	-3.32
N63790-00-0021	9/21/1996	1195	1159	-36	-3.01
N63790-00-0022	10/13/1987	1175	1136	-39	-3.32
N63790-00-0024	4/5/1995	1175	1133	-42	-3.57
N63790-00-0025	3/21/2008	1205	1137	-68	-5.64
N63790-00-0030	10/12/1987	1175	1139	-36	-3.06
N63790-00-0081	3/15/2006	1195	1154	-41	-3.43
N63790-00-0082	3/21/2008	1205	1159	-46	-3.82
N63790-00-0085	3/31/1992	1175	1109	-66	-5.62
	4/23/2009	1175	1123	-52	-4.42
N63790-00-0089	1/22/1993	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	3/31/1992	1185	1143	-42	-3.54
N63790-00-0091	9/10/1986	1195	1155	-40	-3.35
N63790-00-0093	3/10/2005	1205	1154	-51	-4.23
N63790-00-0113	9/10/1987	1146	1094	-52	-4.54
N63790-00-0130	3/15/2007	1205	1145	-60	-4.98
N63790-00-0132	4/12/2000	1195	1154	-41	-3.43
	3/10/2005	1195	1134	-61	-5.10

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

- 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	6/18/1991	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.

NOTE: Three of the five SRVs that are the subject of this relief request have never failed the Code as-found test. One SRV fail on the high side and one SRV failed on the low side. The as-found test results for these SRVs are shown in the table below.

<i>Serial Number</i>	<i>Date Tested</i>	<i>Set Pressure (psig)</i>	<i>Test (psig)</i>	<i>Deviation (psig)</i>	<i>% Deviation</i>
N63790-00-0084	1/15/1987	1175	1158	-17	-1.45
	4/2/1991	1175	1179	4	0.34
	1/22/1993	1175	1175	0	0.00
	5/19/1995	1175	1189	14	1.19
	3/27/1997	1195	1172	-23	-1.92
	3/28/2004	1195	1184	-11	-0.92
N63790-00-0086	9/2/1986	1175	1147	-28	-2.38
	3/31/1988	1175	1164	-11	-0.94
	2/12/1990	1175	1166	-9	-0.77
	3/31/1992	1175	1172	-3	-0.26
	1/24/1994	1175	1190	15	1.28
	3/29/1999	1195	1166	-29	-2.43
	3/28/2004	1175	1191	16	1.36
N63790-00-0090	9/3/1986	1185	1178	-7	-0.59
	2/12/1990	1185	1179	-6	-0.51
	3/31/1992	1185	1143	-42	-3.54
	5/9/1995	1185	1150	-35	-2.95
	4/1/1997	1195	1228	33	2.76
	3/27/2004	1205	1195	-10	-0.83
N63790-00-0092	11/12/1986	1195	1188	-7	-0.59
	10/6/1990	1195	1176	-19	-1.59
	8/17/1992	1205	1191	-14	-1.16
	9/22/1996	1195	1204	9	0.75
	3/31/1999	1195	1179	-16	-1.34
	3/30/2004	1195	1200	5	0.42
N63790-00-0094	9/2/1986	1205	1190	-15	-1.24
	3/31/1988	1205	1189	-16	-1.33
	10/5/1989	1205	1177	-28	-2.32
	6/18/1991	1205	1244	39	3.24
	1/24/1994	1205	1178	-27	-2.24
	3/30/1999	1205	1224	19	1.58
	3/26/2004	1205	1174	-31	-2.57