UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 17, 2011

Mr. Timothy S. Rausch
Senior Vice President and Chief Nuclear Officer
PPL Susquehanna, LLC
769 Salem Boulevard
Berwick, PA 18603-0467

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: CHANGE TO TECHNICAL SPECIFICATIONS (TSs) SURVEILLANCE REQUIREMENTS (SRs) 3.4.3.1 TO REVISE THE LOWER SURVEILLANCE TOLERANCES (TAC NOS. ME5050 AND ME5051)

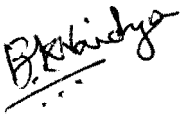
Dear Mr. Rausch:

The Commission has issued the enclosed Amendment No. 257 to Renewed Facility Operating License No. NPF-14 and Amendment No. 237 to Renewed Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station (SSES), Units 1 and 2. These amendments consist of changes to the TSs in response to your application dated November 10, 2010, as supplemented by letter dated August 26, 2011.

The amendments revised the SSES Unit 1 and Unit 2 TS SR 3.4.3.1 "Safety/Relief Valves (S/RVs)" to the lower tolerances from -3% to -5%. These changes would be limited to the lower tolerances and does not affect the upper tolerances. These changes only apply to the lower as-found tolerance and not to the as-left tolerance, which will remain unchanged at ±1% of the safety lift setpoint. The as-found tolerances are used for determining past operability and to increase sample sizes for S/RV testing should the upper tolerance be exceeded. There will be no revision to the actual setpoints of the valves installed in the plant due to this change.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's next regular Biweekly *Federal Register* Notice.

Sincerely,



Bhalchandra K. Vaidya, Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosures:
1. Amendment No. 257 to License No. NPF-14
2. Amendment No. 237 to License No. NPF-22
3. Safety Evaluation

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PPL SUSQUEHANNA, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 257
License No. NPF-14

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:

   A. The application for the amendment filed by PPL Susquehanna, LLC, dated November 10, 2010, as supplemented by letter dated August 26, 2011, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;

   C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of the Renewed Facility Operating License No. NPF-14 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 257 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PPL Susquehanna, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Nancy L. Salgado

Nancy L. Salgado, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the License and
Technical Specifications

Date of Issuance: November 17, 2011

ATTACHMENT TO LICENSE AMENDMENT NO. 257

RENEWED FACILITY OPERATING LICENSE NO. NPF-14

DOCKET NO. 50-387

Replace the following page of the Renewed Facility Operating License with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

REMOVE	INSERT
Page 3	Page 3

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

REMOVE	INSERT
3.4-9	3.4-9

(3) PPL Susquehanna, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed neutron sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) PPL Susquehanna, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70 to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(5) PPL Susquehanna, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70 to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

PPL Susquehanna, LLC is authorized to operate the facility at reactor core power levels not in excess of 3952 megawatts thermal in accordance with the conditions specified herein. The preoperational tests, startup tests and other items identified in License Conditions 2.C.(36), 2.C.(37), 2.C.(38), and 2.C.(39) to this license shall be completed as specified.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 257 and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. PPL Susquehanna, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

For Surveillance Requirements (SRs) that are new in Amendment 178 to Facility Operating License No. NPF-14, the first performance is due at the end of the first surveillance interval that begins at implementation of Amendment 178. For SRs that existed prior to Amendment 178, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the Surveillance was last performed prior to implementation of Amendment 178.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify the safety function lift setpoints of the required S/RVs are as follows: ----------NOTE---------- Up to two inoperable required S/RVs may be replaced with spare OPERABLE S/RVs having lower setpoints until the next refueling outage. ---------- Number of S/RVs — Setpoint (psig) 2 — 1175 (≥ 1117 and ≤ 1210) 6 — 1195 (≥ 1136 and ≤ 1230) 8 — 1205 (≥ 1145 and ≤ 1241) Following testing, lift settings shall be within ±1%.	In accordance with the Inservice Testing Program

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PPL SUSQUEHANNA, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 237
License No. NPF-22

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:

   A. The application for the amendment filed by the PPL Susquehanna, LLC, dated November 10, 2010, as supplemented by letter dated August 26, 2011, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;

   C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of the Renewed Facility Operating License No. NPF-22 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 237 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PPL Susquehanna, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Nancy L. Salgado

Nancy L. Salgado, Chief
Plant Licensing Branch 1-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the License and
Technical Specifications

Date of Issuance: November 17, 2011

ATTACHMENT TO LICENSE AMENDMENT NO. 237

RENEWED FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

Replace the following page of the Renewed Facility Operating License with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

REMOVE	INSERT
Page 3	Page 3

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

REMOVE	INSERT
3.4-9	3.4-9

(3) PPL Susquehanna, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed neutron sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) PPL Susquehanna, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(5) PPL Susquehanna, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

PPL Susquehanna, LLC is authorized to operate the facility at reactor core power levels not in excess of 3952 megawatts thermal in accordance with the conditions specified herein. The preoperational test, startup tests and other items identified in License Conditions 2.C.(20), 2.C.(21), 2.C.(22), and 2.C.(23) to this license shall be completed as specified.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 237 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PPL Susquehanna, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

For Surveillance Requirements (SRs) that are new in Amendment 151 to Facility Operating License No. NPF-22, the first performance is due at the end of the first surveillance interval that begins at implementation of Amendment 151. For SRs that existed prior to Amendment 151, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the Surveillance was last performed prior to implementation of Amendment 151.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify the safety function lift setpoints of the required S/RVs are as follows: ----------NOTE---------- Up to two inoperable required S/RVs may be replaced with spare OPERABLE S/RVs having lower setpoints until the next refueling outage. ---------- Number of S/RVs — Setpoint (psig) 2 — 1175 (≥ 1117 and ≤ 1210) 6 — 1195 (≥ 1136 and ≤ 1230) 8 — 1205 (≥ 1145 and ≤ 1241) Following testing, lift settings shall be within ±1%.	In accordance with the Inservice Testing Program

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 257 TO RENEWED

FACILITY OPERATING LICENSE NO. NPF-14

AND AMENDMENT NO. 237 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-22

PPL SUSQUEHANNA, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

DOCKET NOS. 50-387 AND 50-388

1.0 INTRODUCTION

By application dated November 10, 2010, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML103160081) as supplemented by letter dated August 26, 2011 (ADAMS Accession No. ML112380639), PPL Susquehanna, LLC (the licensee), requested changes to the Technical Specifications (TSs) for Susquehanna Steam Electric Station, Units 1 and 2 (SSES-1 and 2). The supplement dated August 26, 2011, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission's (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on February 22, 2011 (76 FR 9828).

The proposed changes to the SSES Unit 1 and Unit 2 TS Surveillance Requirements (SRs) 3.4.3.1 "Safety/Relief Valves (S/RVs)" revise the safety function lift setpoint lower tolerance for the S/RVs. The proposed changes will revise the lower tolerances from -3% to -5%. These changes would be limited to the lower tolerances and does not affect the upper tolerances. These changes only apply to the lower as-found tolerance and not to the as-left tolerance, which will remain unchanged at ±1% of the safety lift setpoint. The as-found tolerances are used for determining past operability and to increase sample sizes for S/RV testing should the upper tolerance be exceeded. There will be no revision to the actual setpoints of the valves installed in the plant due to this change.

The proposed change to the Unit 1 and Unit 2 TS SR 3.4.3.1 would revise the S/RVs lower setpoint tolerances as follows:

Setpoint	Lower Tolerance
1175	from ≥1140 to ≥1117
1195	from ≥1160 to ≥1136
1205	from ≥1169 to ≥1145

The proposed change reduces an unnecessarily restrictive SR. The proposed change will not impact the reliability of the S/RVs or adversely impact their ability to perform their safety function. The S/RVs are required to meet American Society of Mechanical Engineers (ASME) limits based on valve type and size to ensure acceptable valve performance. These limits are not being changed. This change will preclude the submittal of unnecessary Licensee Event Reports (LERs) to the NRC due to set point drift in the low (conservative) direction.

2.0 REGULATORY EVALUATION

The Commission's regulatory requirements related to the contents of TS, set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36, require that the TS limiting conditions for operation (LCOs) are consistent with assumed values of the initial conditions in the licensee's safety analyses. Regulation in 10 CFR 50.36(c)(2)(i) states: "limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met." 10 CFR 50.36, "Technical specifications," provides the regulatory requirements for the content required in the TSs. As stated in 10 CFR 50.36, the TSs will include SRs to assure that the LCOs (and associated remedial actions) are met.

GDC 15-Reactor Coolant System Design (Criterion 15)

General Design Criterion 15 of Appendix A of 10 CFR Part 50 requires that "The reactor coolant system (RCS) and associated auxiliary, control, and protection systems shall be designed with sufficient margin to assure that the design conditions of the reactor coolant pressure boundary are not exceeded during any condition of normal operation, including anticipated operational occurrences." Further, the Commission's regulatory requirements related to the content of TSs are set forth in 10 CFR 50.36. Specifically, 10 CFR 50.36(c)(2)(ii) sets forth four criteria to be used in determining whether an LCO is required to be included in TSs. These criteria require an LCO for: (1) installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the RCS pressure boundary; (2) initial plant conditions that are assumed in a design-basis transient and accident analysis; (3) components or systems that are used for mitigating consequences of the design-basis transient and accident; and (4) components or systems which probabilistic risk assessment has shown to be significant to public health and safety. The Standard Technical Specifications (STSs) were developed based on the criteria in 10 CFR 50.36(c)(2)(ii). Existing LCOs and related SRs included as TS requirements, which satisfy any of the criteria specified in 10 CFR 50.36(c)(2)(ii), must be retained in the TSs.

The NRC encourages licensees to upgrade their TSs consistent with those criteria and conforming, to the extent practical and consistent with the licensing basis for the plants, to the current STSs.

The S/RVs are part of the primary success path and are assumed in the Updated Final Safety Analysis Report (UFSAR) in the accident and safety analyses to mitigate the effects of the licensing-basis accidents. In accordance with the Criterion 3 of 10 CFR 50.36(c)(2)(ii) discussed above, TS LCOs are required for both the S/RV safety and relief modes of operation. Since the setpoint tolerance and SRs for S/RVs are proposed to be changed, the licensee is required to provide acceptable analyses to support the adequacy of the TS changes.

GDC 35- Emergency Core Cooling (Criterion 35)

The Automatic Depressurization System (ADS) functions to reduce the reactor pressure so that flow from low-pressure coolant injection (LPCI) and core spray (CS) enters the reactor vessel in time to cool the core and prevent excessive fuel clad temperature. The ADS uses several of the nuclear system pressure relief valves to relieve the high pressure steam to the suppression pool. GDC 35 is not affected by this proposed change.

3.0 TECHNICAL EVALUATION

System Description

SSES has a total of 16 S/RVs installed on the four main steam lines, all S/RVs are of the same design, and 14 out of 16 are required to be operable. The S/RVs provide three main protection functions, which are:

1) the overpressure relief mode;
2) the overpressure safety mode; and
3) the automatic depressurization operation.

In the safety mode (or the spring mode of operation) the valves open when steam pressure at the valve inlet overcomes the spring force holding the valve closed. This mode satisfies the ASME Boiler and Pressure Vessel Code (ASME Code) requirements. It is this mode of operation for which the lower surveillance tolerances for the safety function lift setpoints will be relaxed from -3% to -5%. The upper surveillance tolerances will remain at +3%. The relief and automatic depressurization modes rely upon solenoid actuation to open the valves and are not affected by this proposed change.

The SSES S/RVs are Crosby Style 6xRx10 HB-65-BP S/RVs. A review of as-found test data for the SSES S/RVs indicates a tendency for minor setpoint drift in the negative direction. Industry experience shows that it is the nature of these valves to have a drift-variance with an initial as-found low lift pressure. It is typical for two or three S/RVs out of a sample size of six to lift between -5% to -3%. The second, third, and fourth test lifts following the initial test lift will typically be within the ±3% band. The valve manufacturer attributes these variances to no cause other than setpoint drift/variance.

Currently, at least four S/RVs are removed during each refueling outage, bench tested for safety set pressure and replaced with valves certified to have zero seat-to-disk leakage and to have

safety lift setpoint tolerances within ±1% of the setpoint as specified in the TS SR 3.4.3.1. If the as-found lift is greater than the +3% tolerance for one of the S/RVs tested from the sample size, the sample size will be increased by two S/RVs, in accordance with the inservice testing (IST) program requirements.

3.1 Licensee's Basis for the Proposed S/RV Setpoint Tolerances

In its submission dated November 10, 2010, the licensee stated:

"The SSES S/RVs were originally purchased to the ASME Code, Section III, Nuclear Vessel, up to and including S[s]ummer 1970 Addenda. The designed setpoint tolerance of the safety setting was ±1% for construction based upon ASME Section III, S[s]ummer 1971, Article NB-7000. The original TS testing requirements were based upon this design code.

The NRC staff issued an SER [Safety Evaluation Report] on the BWROG [Boiling Water Reactor Owners Group] Licensing Topical Report [LTR] NEDC-31753P, ["BWROG Inservice Pressure Relief Technical Specification Revision Licensing Topical Report."] In the SER, the NRC stated that a generic change of setpoint tolerance to ±3% is acceptable provided that it is evaluated in the analytical bases. The required analysis was completed for SSES and the change was approved by the NRC.

The Operability of the S/RVs is based on the TS SR acceptance criteria with a setpoint tolerance of ±3%. If any S/RV exceeds the tolerance, a Condition Report for each S/RV that exceeds the tolerance is entered into the Corrective Action Program to evaluate the test failure. If more than two (2) S/RVs exceed the tolerance, an LER would be required. In addition, test failures above +3% would result in testing additional valves to comply with Code requirements.

The proposed lower setpoint tolerance change from -3% to -5% was evaluated using the previously accepted methodology of LTR [NEDC-31753P] and the associated SER. Since the evaluation done in detail to support the current upper and lower tolerances of ±3%, and the conclusions of the evaluation have not changed, only those areas not previously reviewed by the NRC [are provided.]"

"The purpose of the lower setpoint tolerance is to ensure sufficient margin exists between the normal operating pressure of the system and the point at which the S/RVs actuate in the overpressure safety mode. The nominal operating pressure of the reactor pressure vessel at power is 1050 psig. A lower setpoint tolerance value of -5%, applied to the lowest nominal S/RV (1175 psig) would allow it to lift at 1117 psig. The lowest potential margin between the nominal reactor pressure and the S/RV lift pressure of the valves with the lowest overpressure safety setpoint is 67 psig. Also, the relief mode for two S/RVs are [is] set at 1106 psig. The relief mode on these two S/RVs would actuate before the above stated 1117 psig lowest allowable lift. The potential margin is sufficient to prevent unwanted actuation of the S/RVs, since the relief mode setpoint of 1106 psig ensures that pressure transients will still cause the valves to open in the relief mode prior to the safety mode. Therefore, there will be no additional inadvertent S/RV lifts.

The valves removed for testing are returned to a tolerance of ±1% prior to being installed for service, thereby returning the margin to the original levels. Therefore, the margin is considered adequate and will not impact normal plant operation.

Tests results for SSES S/RVs have shown that the majority of S/RVs experience minor setpoint drift in the negative direction over time. Based on a review of the 295 previous test results for the SSES valves, the average drift was -0.78% from bench test to bench test with a Standard Deviation of 1.56%. There were 22 valve tests that failed below the -3% tolerance. There were 3 valves that tested below -5%. The database includes tests for valves that span more than 6 years between bench tests. Therefore, excessive drift over multiple operating cycles is not anticipated for the S/RVs. The S/RV leakage is monitored and determined by the S/RV tailpipe temperatures recorded in the main control room. If a valve's tailpipe temperature reaches a specified temperature, the S/RV is considered to be leaking and will typically be replaced at the next refueling outage."

3.2 NRC Staff Evaluation of Proposed S/RV Setpoint Tolerance

The following evaluation by the NRC staff is based on the licensee's submittals dated November 10, 2010, and August 26, 2011.

The NRC SER for the above described LTR NEDC-31753P report did not approve an as-found tolerance outside the ±3% range. The NRC staff has approved -5% expanded lower as-found setpoint tolerance for River Bend Station Unit 1 (ADAMS Accession No. ML030450307, dated February 13, 2003). One of the issues of concern to the NRC staff was of possible effects of increased valve seat leakage due to lower simmer margins. The expanded lower as-found tolerance could result in less testing and maintenance applied to the valves; therefore, this might result in an increased tendency for the S/RVs to drift to lower setpoints and leak. With increased leakage there is an increased risk of a damaging water hammer occurrence following a loss of offsite power as described in NRC Information Notice (IN) 87-10, "POTENTIAL FOR WATER HAMMER DURING RESTART OF RESIDUAL HEAT REMOVAL PUMPS," dated February 11, 1987, and IN 87-10, Supplement 1, dated May 15, 1997. However, since the licensee will continue to apply the ±1% as-left tolerance for resetting the S/RVs and since the valves are not expected to drift significantly greater amounts for longer operational service, the -5% as-found tolerance is not expected to result in increased leakage. In addition, the S/RV leakage is monitored and determined by the S/RV tailpipe temperatures recorded in the main control room. If a valve's tailpipe temperature reaches a specified value, the S/RV is considered to be leaking and will typically be replaced at the next refueling outage.

The NRC staff has reviewed the effects of the change in S/RV setpoint tolerance from -3% to -5% and finds that it is not significant to S/RV operation during overpressure transients. The nominal setpoints for the relief and safety modes are not changed. The nominal operating pressure of the reactor pressure vessel at power is 1050 psig. For the lowest as-found setpoint of -5%, the S/RV set at the lowest nominal pressure (1175 psig) would lift at 1117 psig and provide an operating margin of 67 psi between the nominal reactor operating pressure and the S/RV lift pressure. This provides sufficient margin and is sufficient to prevent unwanted actuation of the S/RVs postulated to occur during pressurization transients. Also, the relief mode for two S/RVs is set at 1106 psig. The relief mode on these two S/RVs would actuate before the above stated 1117 psig lowest allowable lift. The additional margin of 11 psig is sufficient to prevent unwanted actuation of the S/RVs, since the relief mode setpoint of 1106

psig ensures that pressure transients will still cause the valves to open in the relief mode prior to the safety mode. Therefore, there will be no additional inadvertent S/RV lifts. In addition, according to Crosby Valve and Gage Company Procedure I-11069, "Instruction Manual for Crosby Style 6xRx10 HB-65-BP Safety Relief Valve for Main Steam Service," the low limit of the setpoint tolerance may be extended to -9% and still assure normal valve response. The proposed lower setpoint tolerance of -5% is within the vendor's allowable limit of -9%. Since the high setpoint tolerance is unchanged, the capability of the S/RVs to ensure ASME overpressure protection is maintained. Therefore, the staff finds the proposed TS SR with the +3% and -5% as-found setpoint tolerance to be acceptable.

3.3 NRC Staff Evaluation of Proposed Change on the System Function

The purpose of the Nuclear Pressure Relief System is to prevent over-pressurization of the Reactor Vessel boiler system during abnormal operational transients. This protects the primary system process barrier from failure, which could result in the release of fission products.

The ASME Code requires that 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 Main Steam S/RVs are selected such that the peak pressure in the nuclear system will not exceed the ASME Code limits for the Reactor Coolant Pressure Boundary (RCPB). SSES has a total of 16 S/RVs of which 14 are required to be operable.

The NRC staff reviewed all possible Anticipated Operational Occurrences (AOOs) involving pressure protection from the S/RVs that may be affected by lowering the SR tolerances to -5%. In general, the assumed initial conditions of these occurrences used the upper bounding +3% of the setpoint tolerance. Many also assumed that two of the lowest pressure group S/RVs were out of service. The NRC staff review of all pressure protection AOOs found that they would not be adversely affected by the proposed changes. The NRC staff findings with regards to the review of the prominent AOOs, namely, Generator Load Reject, Closure of MSIVs, Loss of Feedwater, and Anticipated Transient Without SCRAM (ATWS) with Turbine Trip, are presented below:

(a) Generator Load Reject assumes two S/RVs with the lowest pressure setting are out of service. It also assumes the S/RVs open at +3% of the tolerance. The -5% of tolerance would not cause the Generator Load Reject to come closer to violating any safety limits.

(b) Closure of main steam isolation valves (MSIVs) has the same assumptions as the Generator Load Reject and would also not affect margin to safety limit violations.

(c) Loss of Feedwater Flow potential for single relief valve to close could depressurize the reactor but reactor core isolation cooling (RCIC) or high-pressure coolant injection (HPCI) are capable of maintaining adequate core coverage and provide inventory control. The lower tolerance of -5% should not affect the ability of an S/RV to close as it is still within the manufacturers specifications for valve operability.

(d) ATWS with Turbine Trip also has some of the same initial assumptions. It is important to note that during an ATWS, the ADS function of the S/RVs is inhibited. This is to keep the valves from remaining open and causing power oscillations in the core. The pressure of the vessel will still ride on the S/RVs and an extra 2% lower tolerance will not

affect the outcome of the scenario as boron injection and other ATWS mitigation systems function at high pressures.

The purpose of the lower setpoint tolerance is to ensure sufficient margin exists between normal operating pressure of the system and the point at which the S/RVs actuate in the overpressure safety mode. The current nominal operation pressure of the reactor pressure vessel (RPV) at SSES is 1050 psig. With the lowest -5% setpoint applied to the lowest nominal pressure S/RV of 1175 psig, the S/RV would be allowed to lift at 1117 psig. This is a 67 psig difference which provides sufficient margin between normal operating pressure and the point at which the S/RVs actuate.

The NRC staff has reviewed the licensee's proposed change for its effect on the same topics reviewed by the NRC staff during its review and approval of Topical Report NEDC-31753P for changing the tolerance from ±1% to ±3% by letter dated March 8, 1993 (ADAMS Accession No. 9702070012), as well as review and approval of the amendment for River Bend Station, Unit 1 for changing the setpoint tolerance from -3% to -5% by letter dated February 13, 2003 (ADAMS Accession No. ML030450307). Also, since SSES does not have the low-low set S/RV logic, the NRC staff finds that there would not be any possible effects of low-low set S/RV logic for SSES.

3.4 Discussion - NRC Approved Relief Requests

By letter dated March 10, 2005, the NRC authorized RR-02, Revision 0, in which the licensee proposed an alternative test frequency of 6 years (3 refueling outages) in lieu of 5 years as required by Appendix I, paragraph I-1330(a) of the ASME OM Code for MS/RVs PSV141F013A through H, J through N, and P through S (ADAMS Accession No. ML050690239).

Additionally, by letter dated June 1, 2010, the licensee requested approval of RR-02, Revision 1 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 (MS S/RVs) PSV141F013A through H, J through N, and P through S (ADAMS Accession No. ML101610805).

However, the proposed alternatives in the above mentioned relief requests approved by the NRC staff also include the relief from the requirements of ASME OM Code, Appendix I, I-1330(c)(i) for testing additional valves, i.e., if the as-found setpoint exceeds the -3% tolerance limit for each valve, when tested, 2 additional valves will be tested from the same group.

The NRC staff has determined that this relief from the requirements of ASME OM Code, Appendix I, I-1330(c)(i) for testing additional valves, when a tested valve fails to meet -3% tolerance for as-found setpoint, would be acceptable for the revised setpoint tolerance of -5% also, for the remainder of the third 10-year IST interval that began on June 1, 2004, and is scheduled to end on May 31, 2014.

3.5 Conclusion – Technical Evaluation

Based on the evaluation in Sections 3.1 through 3.3 above, the NRC staff finds that the licensee has adequately justified the proposed changes to the TS for SSES Units 1 and 2 that:

(a) It is not significant to S/RV operation during overpressure transients,

(b) The nominal setpoints for the relief and safety modes are not changed. The nominal operating pressure of the reactor pressure vessel at power is 1050 psig. For the lowest as-found setpoint of -5%, the S/RV set at the lowest nominal pressure (1175 psig) would lift at 1117 psig providing an operating margin of 67 psi between the nominal reactor operating pressure and the S/RV lift pressure. This provides sufficient margin and is sufficient to prevent unwanted actuation of the S/RVs postulated to occur during pressurization transients.

(c) Also, the relief mode for two S/RVs is set at 1106 psig. The relief mode on these two S/RVs would actuate before the above stated 1117 psig lowest allowable lift. The additional margin of 11 psig is sufficient to prevent unwanted actuation of the S/RVs, since the relief mode setpoint of 1106 psig ensures that pressure transients will still cause the valves to open in the relief mode prior to the safety mode. Therefore, there will be no additional inadvertent S/RV lifts.

(d) In addition, according to Crosby Valve and Gage Company Procedure I-11069, "Instruction Manual for Crosby Style 6xRx10 HB-65-BP Safety Relief Valve for Main Steam Service," the low limit of the setpoint tolerance may be extended to -9% and still assure normal valve response. The proposed lower setpoint tolerance of -5% is within the vendor's allowable limit of -9%. Since the high setpoint tolerance is unchanged, the capability of the S/RVs to ensure ASME overpressure protection is maintained.

(e) The NRC staff has determined that the proposed change will not affect plant AOOs or operating conditions. The NRC staff finds the change to be compliant with 10 CFR 50.36.

Therefore, the NRC staff has concluded that the proposed changes to TS SR 3.4.3.1 are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes SRs. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation

exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (76 FR 9828). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. Timothy S. Rausch (Susquehanna) letter to USNRC, "Change to Technical Specification Surveillance Requirement (SR) 3.4.3.1 to Revise the Lower Surveillance Tolerances" dated November 10, 2010.

2. NEDC-3 1753P, "BWROG In-Service Pressure Relief Technical Specification Revision Licensing Technical Report"

3. PLA-5377, "Proposed Amendment No. 244 To License NPF-14 And Proposed Amendment No. 208 To License NPF-22: Revise Main Steam Relief Valve Steam Setpoint Tolerance And Requests For Relief from IST And ASME Code Requirements"

4. PLA-5430, "Supplement to Proposed Amendment No. 244 To License NPF-14 And Proposed Amendment No. 208 To License NPF-22: Revise Main Steam Relief Valve Steam Setpoint Tolerance And Requests For Relief from IST And ASME Code Requirements"

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J. Miller, NRR/DSS/SRXB

Date: November 17, 2011

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's next regular Biweekly *Federal Register* Notice.

Sincerely,

/ra/

Bhalchandra K. Vaidya, Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosures:
1. Amendment No. 257 to License No. NPF-14
2. Amendment No. 237 to License No. NPF-22
3. Safety Evaluation

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