



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

September 8, 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 AMENDMENT RE: ADOPTION OF TSTF-514, REVISION 3 (TAC NOS.
ME6036 AND ME6037)

Dear Mr. Rausch:

The Commission has issued the enclosed Amendment No. 256 to Renewed Facility Operating License No. NPF-14 and Amendment No. 236 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 Technical Specifications (TSs) in response to your application dated April 8, 2011.

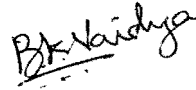
The amendments revised and added a new Condition C to TS 3.4.6, "RCS [Reactor Coolant System] Leakage Detection Instrumentation" and revise the associated TS Bases. New Condition C is applicable when the primary containment atmosphere gaseous radiation monitor is the only operable TS-required instrument monitoring RCS leakage, i.e., TS-required particulate and sump monitors are inoperable. New Condition C Required Actions require monitoring RCS leakage by obtaining and analyzing grab samples of the primary containment atmosphere every 12 hours, monitoring RCS leakage using administrative means every 12 hours, and taking action to restore monitoring capability using another monitor within 7 days. Additionally, minor editorial revisions are proposed to ensure continuity of the TS format. These changes are the result of new Condition C and consist of re-lettering existing Conditions C and D as Conditions D and E, respectively.

T. S. Rausch

- 2 -

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,

A handwritten signature in black ink, appearing to read "B.K. Vaidya". The signature is written in a cursive style with a horizontal line underneath the name.

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. 256 to
License No. NPF-14
2. Amendment No. 236 to
License No. NPF-22
3. Safety Evaluation

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

PPL SUSQUEHANNA, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.256
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 April 8, 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 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. 256 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, 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: September 8, 2011

ATTACHMENT TO LICENSE AMENDMENT NO. 256

FACILITY OPERATING LICENSE NO. NPF-14

DOCKET NO. 50-387

Replace the following page of the 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

Page 3

INSERT

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

TS/3.4-15

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TS/3.4-15

- (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. 256 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.

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|--|--|
| <p>B. Required primary containment atmospheric monitoring system inoperable.</p> | <p>B.1 Analyze grab samples of primary containment atmosphere.</p> <p><u>AND</u></p> <p>B.2 Restore required primary containment atmospheric monitoring system to OPERABLE status.</p> | <p>Once per 12 hours</p> <p>30 days</p> |
| <p>-----NOTE-----</p> <p>Only applicable when the primary containment atmospheric gaseous radiation monitor is the only OPERABLE monitor.</p> <p>-----</p> <p>C. Drywell floor drain sump monitoring system inoperable</p> | <p>C.1 Analyze grab samples of the primary containment atmosphere.</p> <p><u>AND</u></p> <p>C.2 Monitor RCS LEAKAGE by administrative means.</p> <p><u>AND</u></p> <p>C.3 Restore drywell floor drain sump monitoring system to OPERABLE status.</p> | <p>One per 12 hours</p> <p>Once per 12 hours</p> <p>7 days</p> |
| <p>D. Required Action and associated Completion Time of Condition A, B, or C not met.</p> | <p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p> | <p>12 hours</p> <p>36 hours</p> |
| <p>E. All required leakage detection systems inoperable.</p> | <p>E.1 Enter LCO 3.0.3.</p> | <p>Immediately</p> |



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WASHINGTON, D.C. 20555-0001

PPL SUSQUEHANNA, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 236
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 April 8, 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.

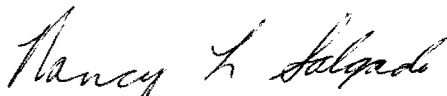
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-22 is hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 236 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, 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: September 8, 2011

ATTACHMENT TO LICENSE AMENDMENT NO. 236

FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

Replace the following page of the 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

Page 3

INSERT

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

TS/3.4-15

INSERT

TS/3.4-15

- (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. 236 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.

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|--|--|
| <p>B. Required primary containment atmospheric monitoring system inoperable.</p> | <p>B.1 Analyze grab samples of primary containment atmosphere.</p> <p><u>AND</u></p> <p>B.2 Restore required primary containment atmospheric monitoring system to OPERABLE status.</p> | <p>Once per 12 hours</p> <p>30 days</p> |
| <p>-----NOTE-----</p> <p>Only applicable when the primary containment atmospheric gaseous radiation monitor is the only OPERABLE monitor.</p> <p>-----</p> <p>C. Drywell floor drain sump monitoring system inoperable</p> | <p>C.1 Analyze grab samples of the primary containment atmosphere.</p> <p><u>AND</u></p> <p>C.2 Monitor RCS LEAKAGE by administrative means.</p> <p><u>AND</u></p> <p>C.3 Restore drywell floor drain sump monitoring system to OPERABLE status.</p> | <p>One per 12 hours</p> <p>Once per 12 hours</p> <p>7 days</p> |
| <p>D. Required Action and associated Completion Time of Condition A, B, or C not met.</p> | <p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p> | <p>12 hours</p> <p>36 hours</p> |
| <p>E. All required leakage detection systems inoperable.</p> | <p>E.1 Enter LCO 3.0.3.</p> | <p>Immediately</p> |



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 256 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-14

AND

AMENDMENT NO. 236 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 April 8, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111010588), 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 proposed amendments revise and add a new Condition C to TS 3.4.6, "RCS [Reactor Coolant System] Leakage Detection Instrumentation" and revise the associated TS Bases. New Condition C is applicable when the primary containment atmosphere gaseous radiation monitor is the only operable TS-required instrument monitoring RCS leakage, i.e., TS-required particulate and sump monitors are inoperable. New Condition C Required Actions require monitoring RCS leakage by obtaining and analyzing grab samples of the primary containment atmosphere every 12 hours, monitoring RCS leakage using administrative means every 12 hours, and taking action to restore monitoring capability using another monitor within 7 days. Additionally, minor editorial revisions are proposed to ensure continuity of the TS format. These changes are the result of new Condition C and consist of re-lettering existing Conditions C and D as Conditions D and E, respectively.

The U.S. Nuclear Regulatory Commission (NRC) staff issued a notice of opportunity for comment in the *Federal Register* (FR) on April 13, 2010 (75 FR 18907 - 18908), based on TS Task Force (TSTF)-514, Revision 1, on possible amendments to revise the plant-specific TS, to define a new time limit for restoring inoperable RCS leakage detection instrumentation to operable status, establish alternate methods of monitoring RCS leakage when one or more required monitors are inoperable, and make TS Bases changes which reflect the proposed

changes and more accurately reflect the contents of the facility design basis related to operability of the RCS leakage detection instrumentation, including a model safety evaluation (SE) and model no significant hazards consideration (NSHC) determination, using the consolidated line-item improvement process. The NRC staff subsequently issued a notice of availability of the models, electronically under ADAMS Accession No. ML102300729, for referencing in license amendment applications in the FR on December 17, 2010 (75 FR 79048).

The FR notice of availability also stated that the NRC staff disposition of comments received on the Notice of Opportunity for Comment announced in the FR on April 13, 2010 (75 FR 18907 - 18908), on TSTF-514, Revision 1 is available electronically under ADAMS Accession No. ML102300727. The differences between the revisions did not cause any changes to the NRC staff SE. As such the comments received on Revision 1 are equally applicable to Revision 3. The licensee affirmed the applicability of the model NSHC determination in its application dated April 8, 2011.

2.0 REGULATORY EVALUATION

The NRC's regulatory requirements related to the content of the TS are contained in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36. Paragraph (c)(2)(i) of 10 CFR 50.36 states that limiting conditions for operation (LCOs) are the lowest functional capability or performance levels of equipment required for safe operation of the facility. Paragraph (c)(2)(ii) of 10 CFR 50.36 lists four criteria for determining whether particular items are required to be included in the TS LCOs. Criterion 1 applies to installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary (RCPB). As described in the *Federal Register* notice associated with this regulation (60 FR 36953, July 16, 1995), the scope of TS includes two general classes of technical matters: (1) those related to prevention of accidents, and (2) those related to mitigation of the consequences of accidents. Criterion 1 addresses systems and process variables that alert the operator to a situation when accident initiation is more likely, and supports the first of these two general classes of technical matters which are included in TS. As specified in Paragraph (c)(2)(i) of 10 CFR 50.36, when an LCO of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TSs until the condition can be met.

The NRC's guidance for the format and content of boiling-water reactor (BWR) TS can be found in NUREG-1433, Revision 3.0, "Standard Technical Specifications [STS] General Electric Plants, BWR/4." STS Section TS 3.4.6, "RCS Leakage Detection Instrumentation" in NUREG-1433 contains the guidance specific to the RCS leakage detection instrumentation for BWRs.

The Bases for STS 3.4.6 contained in NUREG-1433, Revision 3.0, provide background information, the applicable safety analyses, a description of the LCO, the applicability for the RCS leakage detection instrumentation TS, and describe the Actions and Surveillance Requirements. The TS Bases provide the purpose or reason for the TS which are derived from the analyses and evaluation included in the safety analysis report, and for the BWR STS, the RCS leakage detection instrumentation design assumptions and licensing basis for the plant.

As stated in NRC Information Notice (IN) 2005-24, "Non conservatism in Leakage Detection Sensitivity," (ADAMS Accession No. ML051780073), the reactor coolant activity assumptions for primary containment/drywell atmosphere gaseous radioactivity monitors may be conservative.

This means the monitors may not be able to detect a 1 gallon per minute (gpm) leak within 1 hour under all likely operating conditions.

The issue described in IN 2005-24 has raised questions regarding operability requirements for primary containment/drywell atmosphere gaseous radioactivity monitors. TSTF-514, Revision 3, revises the TS Bases to summarize the proposed TS changes and more accurately describe the contents of the facility design basis related to operability of the RCS leakage detection instrumentation. Part of the TS Bases changes revise the specified safety function of the RCS leakage detection monitors to specify the required instrument sensitivity level. In addition, TSTF-514, Revision 3, includes a new TS Condition for RCS leakage detection instrumentation to establish Required Actions for operation during conditions of reduced monitoring sensitivity because the gaseous radioactivity instrumentation is the only operable instrument.

The regulation at 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 30, "Quality of Reactor Coolant Pressure Boundary," requires means for detecting and, to the extent practical, identifying the location of the source of RCS leakage. Regulatory Guide (RG) 1.45, Revision 0, "Reactor Coolant Pressure Boundary Leakage Detection Systems," May 1973, describes acceptable methods of implementing the GDC 30 requirements with regard to the selection of leakage detection systems for the RCPB.

RG 1.45, Revision 0, Regulatory Position C.2, states that "Leakage to the primary reactor containment from unidentified sources should be collected and the flow rate monitored with an accuracy of one gpm or better."

RG 1.45, Revision 0, Regulatory Position C.3 states:

At least three separate detection methods should be employed and two of these methods should be (1) sump level and flow monitoring and (2) airborne particulate radioactivity monitoring. The third method may be selected from the following: a.) monitoring of condensate flow rate from air coolers [or] b.) monitoring of airborne gaseous radioactivity. Humidity, temperature, or pressure monitoring of the containment atmosphere should be considered as alarms or indirect indication of leakage to the containment.

RG 1.45, Revision 0, Regulatory Position C.5 states, "The sensitivity and response time of each leakage detection system in regulatory position 3 above employed for unidentified leakage should be adequate to detect a leakage rate, or its equivalent, of one gpm in less than one hour." RG 1.45, Revision 0, states, "In analyzing the sensitivity of leak detection systems using airborne particulate or gaseous radioactivity, a realistic primary coolant radioactivity concentration assumption should be used. The expected values used in the plant environmental report would be acceptable." The appropriate sensitivity of a plant's primary containment/drywell atmosphere gaseous radioactivity monitors is dependent on the design assumptions and the plant-specific licensing basis as described in the plant's final safety analysis report (FSAR). The NRC staff's approval of the use of expected primary coolant radioactivity concentration values used in the environmental report creates a potential licensing conflict when a licensee is able to achieve and maintain primary coolant radioactivity concentration values lower than the value assumed in the environmental report.

RG 1.45, Revision 1, "Guidance on Monitoring and Responding to Reactor Coolant System Leakage," was issued in May 2008. RG 1.45, Revision 1, describes methods for implementing the GDC 30 requirements that are different from those in RG 1.45, Revision 0, and was developed and issued to support new reactor licensing. Revision 1 allows that having two TS leakage detection methods capable of detecting a one gpm leak within 1 hour provides adequate leakage detection capability from a safety perspective. It recommends that other potential indicators (including the gaseous radiation monitors) be maintained even though they may not have the same detection capability. These indicators, in effect, provide additional defense-in-depth.

SSES FSAR Section 1.2.1.1, "General Design Criteria," states, "The Susquehanna SSES design conforms to the requirements given in 10 CFR Part 50, Appendix A. Specific compliance is discussed in Section 3.1." Specifically, SSES's FSAR Section 3.1.2.4.1 provides a discussion of SSES's design conformance to GDC 30 of 10 CFR Part 50, Appendix A. SSES FSAR Section 3.1.2.4.1 states:

Design Conformance

By utilizing conservative design practices and detailed quality control procedures, the pressure retaining components of the [reactor coolant pressure boundary] RCPB are designed and fabricated to retain their integrity during normal and postulated accident conditions. Accordingly, components that comprise the RCPB are designed, fabricated, erected, and tested in accordance with recognized industry codes and standards listed in Chapter 5. Furthermore, product and process planning is provided as described in Chapter 17 (operation phase) and Appendix D of the PSAR (construction phase) to ensure conformance with the applicable codes and standards, and to retain appropriate documented evidence verifying compliance. Because the subject matter of this criterion deals with aspects of the RCPB, further discussion on this subject is treated in the response to Subsection 3.1.2.2.5.

Means are provided for detecting reactor coolant leakage. The leak detection system consists of sensors and instruments to detect, annunciate, and in some cases, isolate the RCPB from potentially hazardous leaks before predetermined limits are exceeded. Small leaks are detected by temperature and pressure changes, increased frequency of sump pump operation, and by measuring fission product concentration. In addition to these means of detection, large leaks are detected by changes in flow rates in process lines, and changes in reactor water level. The allowable leakage rates have been based on the predicted and experimentally determined behavior of cracks in pipes, the ability to make up coolant system leakage, the normally expected background leakage due to equipment design, and the detection capability of the various sensors and instruments. The total leakage rate limit is established so that, in the absence of normal AC power with a loss of feedwater supply, makeup capabilities are provided by the RCIC system. While the RCIC system provides protection from small leaks, the ECCS network provides protection for the complete range of discharges from ruptured pipes. Thus, protection is provided for the full spectrum of possible discharges.

The RCPB and the leak detection system are designed to meet the requirements of Criterion 30.

SSES FSAR Section 5.2.5.1.2, "Detection of Abnormal Leakage within the Primary Containment (Non-NSSS)," states:

... Leakage through the reactor coolant pressure boundary within the primary containment is detected by monitoring temperatures, pressures, airborne gaseous and particulate radioactivity, and changes of levels in the floor drain sumps... The following systems are used to monitor these variables:

- a) Primary containment and suppression pool temperature monitoring system.
- b) Primary containment and suppression chamber pressure monitoring system
- c) Primary containment atmosphere monitoring system (containment radiation detection)
- d) Drywell floor drain sump level monitoring and drywell equipment drain tank level monitoring system.

The above-mentioned leak detection systems are designed in accordance with recommendations of Regulatory Guide 1.45...

Note that SSES is not committed to RG 1.45, Revision 1, "Guidance on Monitoring and Responding to Reactor Coolant System Leakage," issued on May 2008.

3.0 TECHNICAL EVALUATION

In adopting the changes to TS included in TSTF-514, Revision 3, the licensee proposed to revise TS 3.4.6, "RCS Leakage Detection Instrumentation" Conditions and Required Actions. The licensee proposed adding new Condition C to TS 3.4.6. New Condition C would be applicable when the primary containment atmospheric gaseous radiation monitor is the only operable RCS leakage detection monitor. This new Condition is necessary because improved fuel integrity and the resulting lower primary coolant radioactivity concentration affect the response of a plant's primary containment atmospheric gaseous radiation monitor to a greater extent than the response of other RCS leakage detection monitors to leakage radioactivity. The proposed Required Actions for new Condition C require the licensee to analyze grab samples of the primary containment atmosphere once per 12 hours, restore the required drywell floor drain sump monitoring system to operable status within 7 days, and monitor RCS leakage by administrative means once per 12 hours.

Administrative means of monitoring RCS leakage include trending parameters that may indicate an increase in RCS leakage. There are diverse alternative methods from which appropriate indicators for identifying RCS leakage may be selected based on plant conditions. PPL will utilize the following methods considering the current plant conditions and historical or expected sources of unidentified leakage, as their TS administrative means: primary containment pressure, primary containment temperature, component cooling water system outlet temperatures, component cooling water system makeup, reactor recirculation system pump seal pressure and temperature, reactor recirculation system pump motor cooler temperatures,

primary containment cooling fan outlet temperatures, reactor building chiller amperage, control rod drive system flange temperatures, and/or safety relief valve tailpipe temperature, flow or pressure.

The NRC staff determined that the proposed Condition C is more restrictive than the current requirement, because there is no current TS Condition for the plant condition of the primary containment atmospheric gaseous radiation monitor being the only operable RCS leakage detection monitor. The associated proposed Actions and Completion Times are adequate because monitoring the RCS by administrative means, coupled with primary containment atmospheric grab samples, are sufficient to alert the operating staff to an unexpected increase in unidentified leakage. The primary containment atmospheric grab samples provide a method of detecting particulate and gaseous radioactive material in the primary containment atmosphere. However, taking frequent grab samples will ensure there is no significant loss of monitoring capability during the Required Action Completion Time. The 12-hour interval is reasonable given the availability of the primary containment atmospheric gaseous radiation monitor. Allowing 7 days to restore another RCS leakage monitor to operable status is reasonable given the diverse methods employed in the Required Actions to detect an RCS leak and the low probability of a large RCS leak during this period. Proposed Condition C is conservative relative to the STS, sufficiently alerts the operating staff, provides a comparable ability to detect RCS leakage, and provides time intervals that are reasonable. Therefore, the NRC staff determined that proposed Condition C provides an adequate assurance of safety when judged against current regulatory standards.

The licensee proposes minor changes to ensure continuity of the TS format. These changes re-letter current Condition C, which applies when the required action and the associated Completion Time are not satisfied, to Condition D, and current Condition D, which applies when all required leakage detection systems are inoperable, to Condition E. Similar changes were made to the associated Required Actions. The NRC staff determines that these changes are editorial, and therefore acceptable.

In adopting TSTF-514, Revision 3, the licensee proposed changes that would revise the Bases for TS 3.4.6 to reflect the proposed TS changes and more accurately describe the contents of the facility design basis related to operability of the RCS leakage detection instrumentation and reflect the proposed TS changes. The regulation at 10 CFR 50.36(a)(1) requires a summary statement of the TS Bases or reasons for such specifications be included with the application. The proposed TS Bases changes related to operability of the RCS leakage detection instrumentation are acceptable because they are consistent with the design basis of the facility and provide: (1) background information, (2) applicable safety analyses, (3) a description of the LCO, and (4) the applicability for the RCS leakage detection instrumentation. These instruments satisfy Criterion 1 of 10 CFR 50.36(c)(2)(ii) in that they are installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the RCPB.

The NRC staff evaluated the licensee's proposed changes against the applicable regulatory requirements listed in Section 2.0 of this SE. The NRC staff also compared the proposed changes to the changes made to STS by TSTF-514, Revision 3. The NRC staff determined that all the proposed changes afford adequate assurance of safety when judged against current regulatory standards. Therefore, the NRC staff finds the proposed changes 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. 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 May 31, 2011 (76 FR 31376). 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. PPL Susquehanna, LLC, License Amendment Request to adopt Technical Specification Task Force Traveler TSTF-514, Revision 3, April 8, 2011 (ADAMS Accession No. ML111010588)
2. TSTF-514, Revision 3, "Revise BWR Operability Requirements and Actions for RCS Leakage," November 24, 2010 (ADAMS Accession No. ML103280389)
3. *Federal Register* Notice, Notice of Availability published on December 17, 2010 (ADAMS Accession No. ML102300733)

Principal Contributor: K. Bucholtz, NRR/ITSB

Date: September 8, 2011

T. S. Rausch

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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. 256 to License No. NPF-14
2. Amendment No. 236 to License No. NPF-22
3. Safety Evaluation

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