



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

June 24, 2019

Mr. Kevin Cimorelli
Site Vice President
Susquehanna Nuclear, LLC
769 Salem Boulevard
NUCSB3
Berwick, PA 18603-0467

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT NOS. 272 AND 254 RE: ADOPT TSTF-501, REVISION 1, "RELOCATE STORED FUEL OIL AND LUBE OIL VOLUME VALUES TO LICENSEE CONTROL" (EPID L-2018-LLA-0496)

Dear Mr. Cimorelli:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 272 to Renewed Facility Operating License No. NPF-14 and Amendment No. 254 to Renewed Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station (Susquehanna), Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated December 4, 2018.

The changes revise TS Section 3.8.3 to replace the current stored diesel fuel oil numerical volume requirements with duration-based diesel operating time requirements. Specifically, the changes revise TS 3.8.3, "Diesel Fuel Oil, Lube Oil, and Starting Air," and Surveillance Requirement 3.8.3.1 to verify the volume of each fuel oil storage tank. The changes are consistent with Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control" (Agencywide Documents Access and Management System Accession No. ML090510686), dated February 20, 2009. The availability of this TS improvement was published in the *Federal Register* on May 26, 2010 (75 FR 29588), as part of the consolidated line item improvement process.

K. Cimorelli

- 2 -

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

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer C. Tobin". The signature is fluid and cursive, with a large loop at the end of the last name.

Jennifer C. Tobin, Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosures:

1. Amendment No. 272 to
License No. NPF-14
2. Amendment No. 254 to
License No. NPF-22
3. Safety Evaluation

cc: Listserv



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

SUSQUEHANNA NUCLEAR, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 272
Renewed License No. NPF-14

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that:
 - A. The application for the amendment filed by Susquehanna Nuclear, LLC, dated December 4, 2018, 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;
 - 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 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. 272, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. Susquehanna Nuclear, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION



James G. Danna, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License and
Technical Specifications

Date of Issuance: June 24, 2019

ATTACHMENT TO LICENSE AMENDMENT NO. 272

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

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 area of change.

REMOVE
Page 3

INSERT
Page 3

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE
3.8-20
3.8-22

INSERT
3.8-20
3.8-22

- (3) Susquehanna Nuclear, 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) Susquehanna Nuclear, 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) Susquehanna Nuclear, 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

Susquehanna Nuclear, 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. 272, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. Susquehanna Nuclear, 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.

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystems shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel oil level less than a 7 day supply and greater than a 6 day supply.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil sump level not visible in the sight glass.	B.1 Declare associated DG inoperable.	Immediately
C. One or more DGs with stored fuel oil total particulates not within limits.	C.1 Restore stored fuel oil total particulates to within limits.	7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains \geq a 7 day supply of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify lube oil sump level is visible in the sight glass.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	<p>-----NOTE----- Not required to be met when DG is operating. -----</p> <p>Verify each DG air start receiver pressure is \geq 240 psig.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program



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

SUSQUEHANNA NUCLEAR, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 254
Renewed License No. NPF-22

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that:
 - A. The application for the amendment filed by Susquehanna Nuclear, LLC, dated December 4, 2018, 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;
 - 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 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. 254, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. Susquehanna Nuclear, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION



James G. Danna, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed
Facility Operating License and
Technical Specifications

Date of Issuance: June 24, 2019

ATTACHMENT TO LICENSE AMENDMENT NO. 254
SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2
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 area of change.

REMOVE
Page 3

INSERT
Page 3

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE
3.8-23
3.8-24
3.8-25

INSERT
3.8-23
3.8-24
3.8-25

- (3) Susquehanna Nuclear, 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) Susquehanna Nuclear, 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) Susquehanna Nuclear, 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

Susquehanna Nuclear, 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.(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. 254, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. Susquehanna Nuclear, 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.

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystems shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel oil level less than a 7 day supply and greater than a 6 day supply.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil sump level not visible in the sight glass.	B.1 Declare associated DG inoperable.	Immediately
C. One or more DGs with stored fuel oil total particulates not within limits.	C.1 Restore stored fuel oil total particulates to within limits.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with one or more starting air receiver pressures < 240 psig and ≥ 180 psig.	E.1 Restore starting air receiver pressure to ≥ 240 psig.	48 hours
<p>F. Required Action and associated Completion Time of Condition A, B, C, D or E not met.</p> <p><u>OR</u></p> <p>One or more DGs with diesel fuel oil, lube oil, or starting air not within subsystem limits for reasons other than Condition A, B, C, D or E.</p>	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains \geq a 7 day supply of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify lube oil sump level is visible in the sight glass.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	<p>-----NOTE----- Not required to be met when DG is operating. -----</p> <p>Verify each DG air start receiver pressure is \geq 240 psig.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 272 TO RENEWED FACILITY OPERATING

LICENSE NO. NPF-14

AND AMENDMENT NO. 254 TO RENEWED FACILITY OPERATING

LICENSE NO. NPF-22

SUSQUEHANNA NUCLEAR, 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 December 4, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18339A002), Susquehanna Nuclear, LLC (the licensee) requested changes to the Technical Specifications (TSs) for Susquehanna Steam Electric Station, Units 1 and 2 (Susquehanna). Specifically, the licensee requested changes to the TSs to adopt Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control" (ADAMS Accession No. ML090510686), dated February 20, 2009. The availability of this TS improvement was published in the *Federal Register* on May 26, 2010 (75 FR 29588), as part of the consolidated line item improvement process.

The proposed changes would modify TSs and surveillance requirements (SRs) by replacing the current stored diesel fuel oil numerical volume requirements with duration-based diesel operating time requirements.

2.0 REGULATORY EVALUATION

2.1 System Description

The standby alternating current (AC) power sources are a part of the primary success path and function or actuate to mitigate a design-basis accident or transient that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier. Diesel fuel oil requirements are retained in the TSs as a limiting condition for operation (LCO) under 10 CFR 50.36(c)(2) because they support the operation of the standby AC power sources. Susquehanna's standby AC power system consists of four independent load groups shared by

the two units. All safety-related loads are divided among these four load groups so that the loss of any one group will not prevent the minimum safety functions from being performed. Each load group consists of both standby AC and direct current (DC) power systems. Each load group has connections to two independent offsite power supplies and to a single onsite diesel generator (DG). Each DG is exclusively connected to the corresponding load group of the two units (e.g., DG A connects to load group channel A of both units, etc.). A fifth DG, designated E, is used as a replacement for any one of the four DGs (A, B, C, or D). Only four DGs are required to be operable during operating Modes 1 through 3. The main purpose of DG E is to allow maintenance to be performed on any one of the four A, B, C, or D DGs without the necessity for a two-unit outage. Any DG aligned to a safety bus is capable of an automatic start based on initiation circuits, such as loss of power or a safety injection signal, and capable of continued operation at rated load, voltage, and frequency until manually stopped.

The DG auxiliary and support subsystems, such as fuel oil and fuel oil transfer, lubricating oil, jacket water, emergency service water, and starting air are required for operation of each DG. DGs A, B, C, and D each have a fuel oil day tank with 550 gallons, and DG E has a fuel oil day tank with 650 gallons. Four 50,000 gallon nominal capacity buried storage tanks are provided for DGs A, B, C, and D (DGs A-D), and one 80,000 gallon nominal capacity buried storage tank is provided for DG E.

2.2 Description of the Proposed Changes

The proposed changes would revise TS 3.8.3, "Diesel Fuel Oil, Lube Oil, and Starting Air," Actions table Condition A and SR 3.8.3.1 for each unit by replacing the current stored diesel fuel oil volume numerical requirement with a duration-based diesel operating time requirement. The proposed changes would mean that the volume necessary to meet the TS duration requirements may be modified under licensee control. The specific TS changes are described in the following sections.

2.2.1 Proposed Change to TS 3.8.3 Actions Table Condition A

Condition A of TS LCO 3.8.3 would be revised in the Actions table. Currently, Condition A applies when the stored diesel fuel oil level in the associated storage tank is less than 47,570 gallons and greater than 41,018 gallons for DGs A-D and less than 60,480 gallons and greater than 52,340 gallons for DG E. As discussed in the TS Bases, the numerical diesel fuel oil volume requirements in Condition A are based on a volume of less than a 7-day supply but at least a 6-day supply. The proposed amendments would replace the numerical volumetric requirements with duration-based requirements. Specifically, the TSs would be modified so that Condition A is entered when the stored diesel fuel oil is less than a 7-day supply and greater than a 6-day supply for one or more DGs.

2.2.2 Proposed Change to SR 3.8.3.1

Currently, SR 3.8.3.1 requires the licensee to verify that there is a volume of fuel oil equal to or greater than 47,570 gallons for the DGs A-D storage tanks and 60,480 gallons for the DG E storage tank. As discussed in the TS Bases, the numerical diesel fuel oil volume requirements in SR 3.8.3.1 are based on maintaining an adequate inventory of fuel oil in the storage tanks to support each DG's operation for 7 days at the maximum post-accident load demand. The proposed amendments would replace the numerical volumetric requirements with duration-based requirements. Specifically, SR 3.8.3.1 would be revised to require the licensee to verify that each fuel oil storage tank contains greater than or equal to a 7-day supply of fuel.

2.3 Regulatory Requirements and Guidance Used in the Evaluation of the Proposed Changes

2.3.1 Regulatory Requirements

Section 50.36 of 10 CFR provides the regulatory requirements for the content of the TSs and requires, in part, that a summary statement of the bases for such specifications shall be included by applicants for a license authorizing operation of a production or utilization facility. Specifically, 10 CFR 50.36(c) requires that TSs include items in five specific categories related to station operation. These categories are (1) safety limits, limiting safety system settings, and limiting control settings; (2) LCOs; (3) SRs; (4) design features; and (5) administrative controls.

Section 50.36(c)(2)(i) of 10 CFR states, in part, that LCOs are “the lowest functional capability or performance levels of equipment required for safe operation of the facility.”

Section 50.36(c)(2)(i) of 10 CFR further states, “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.”

Section 50.36(c)(3) of 10 CFR states that SRs are “requirements related to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.”

As described in 10 CFR 50.92(a), in determining whether an amendment to a license will be issued to the applicant, the Commission will be guided by the considerations that govern the issuance of initial licenses to the extent applicable and appropriate. The general considerations that guide the Commission include, as stated in 10 CFR 50.40(a), that the TSs provide reasonable assurance that the health and safety of the public will not be endangered and, as stated in 10 CFR 50.40(d), that any applicable requirements of 10 CFR Part 51 have been satisfied.

2.3.2 Guidance

Regulatory Guide (RG) 1.137, Revision 1, “Fuel-Oil Systems for Standby Diesel Generators” (ADAMS Accession No. ML003740180), provides guidance that describes a method acceptable to the NRC staff for complying with the Commission’s regulations regarding fuel oil systems for standby DGs and endorses American National Standards Institute (ANSI) standard ANSI N195-1976, with certain limitations. RG 1.137, Section C.1.c, sets forth two methods for the calculation of fuel oil storage requirements as described in ANSI N195-1976, Section 5.4, “Calculation of Fuel Oil Storage Requirements.” These methods are (1) calculations based on the assumption that the DG operates continuously for 7 days at its rated capacity and (2) calculations based on the time-dependent loads of the DG. If the time-dependent load method is used, the minimum required capacity should include the capacity to power engineered safety features.

NUREG-1433, Revision 4, “Standard Technical Specifications, General Electric BWR [Boiling-Water Reactor]/4 Plants” (ADAMS Accession No. ML12104A192), provides example TS LCOs and acceptable remedial actions that meet the requirements in 10 CFR 50.36(c)(2)(i) for a standard plant design.

The NRC-approved TSTF Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control" (ADAMS Accession No. ML090510686), provides an acceptable method of modifying the stored fuel oil requirements contained in the Standard Technical Specifications.

3.0 TECHNICAL EVALUATION

The licensee reviewed the model safety evaluation that was published in the *Federal Register* on May 26, 2010 (75 FR 29588) as part of the consolidated line item improvement process notice of availability. The licensee concluded, as stated on page 4 of Enclosure 1 to the license amendment request, that the justifications presented in the model safety evaluation are applicable to Susquehanna and, therefore, justify these amendments.

Each DG is provided with a fuel oil capacity sufficient to operate that DG for a period of 7 days. This onsite fuel oil capacity is sufficient to operate the DG long enough to place the unit in a shutdown condition and to bring in replenishment fuel from offsite sources.

The standby AC power sources (i.e., the DGs) are a part of the primary success path and function or actuate to mitigate a design-basis accident or transient that either assumes the failure of, or presents a challenge to the integrity of, a fission product barrier. Requirements for diesel fuel oil supplies are retained in the TSs under 10 CFR 50.36(c)(2)(i) because they support the operation of the standby AC power sources.

The proposed changes would revise TS 3.8.3 and SR 3.8.3.1 by replacing the current stored diesel fuel oil numerical volume requirements with the associated duration-based diesel operating times. If approved, these changes would permit the fuel oil volumes necessary to support a duration-based diesel operating time to be modified under licensee control pursuant to 10 CFR 50.59. The NRC staff's evaluation of the proposed TS changes is provided in the following sections.

3.1 NRC Staff Evaluation of Proposed Change to TS 3.8.3 Actions Table Condition A

Currently, Condition A of TS 3.8.3 is entered on both units when the fuel oil volume requirement for a DG is not met when that DG is required to be operable. The current TS Bases state that the numerical volume requirements in Condition A are based on a volume of less than a 7-day supply but at least a 6-day supply. The proposed change would replace the numerical volumetric requirements in TS 3.8.3 Action table Condition A with duration-based diesel operating time requirements such that Condition A is entered when the stored fuel oil level is less than a 7-day supply and greater than a 6-day supply for one or more DGs. No other part of Condition A is proposed to be modified.

As described in Section 3.2 below, the licensee stated that the stored diesel fuel oil numerical volumes sufficient to meet the duration-based operating time requirements will be calculated using Section 5.4 of ANSI N195-1976 and that the volumes are based on applying the conservative assumption that the DG is operated continuously for 7 days at its rated capacity. The use of this methodology will ensure that the supplies of stored diesel fuel oil for each DG that dictate condition entry will continue to be calculated in accordance with NRC-approved methods.

Based on the above evaluation, the NRC staff concludes that the proposed change to the TS 3.8.3 Actions table is acceptable.

3.2 NRC Staff Evaluation of Proposed Change to SR 3.8.3.1

Currently, SR 3.8.3.1 requires the licensee to verify that the stored diesel fuel oil numerical volume requirements are met.

The licensee proposes to revise SR 3.8.3.1 to reflect the change from numerical volume requirements to durational requirements made in the TS 3.8.3 Actions table. Specifically, SR 3.8.3.1 would be revised to require that the licensee verify the availability of greater than or equal to a 7-day supply of fuel oil for each DG rather than a specified numerical volume.

The licensee stated in its application that an NRC-approved fuel oil calculation methodology is currently used to calculate fuel oil volumes. Specifically, on page 3 of Enclosure 1 to the application, the licensee states:

For Diesel Generators A-D, the specific volume of fuel oil equivalent to a 7 and 6-day supply is calculated using the NRC-approved methodology described in Regulatory Guide (RG) 1.137, Revision 0, "Fuel-Oil Systems for Standby Diesel Generators," and ANSI-N195 1976, "Fuel Oil Systems for Standby Diesel-Generators." For Diesel Generator E, the specific volume of fuel oil is calculated using the NRC-approved methodology described in RG 1.137, Revision 1 and ANSI-N195 1976.

The methodology in ANSI N195-1976 discusses how the stored diesel fuel oil requirement should be calculated based upon the DGs operating at the minimum required capacity for the plant condition that is most limiting for the calculation of such capacity. One method for calculating the stored diesel fuel oil supply in ANSI N195-1976 takes into account the time-dependence of DG loads. That is, if DG loads increase or decrease during the event, the load changes should be included in the required fuel storage calculation. If the design includes provisions for an operator to supply power to equipment other than the minimum required for the plant condition, such additional loads should be included in the calculation of required fuel storage capacity. Revision 1 of RG 1.137 supplements the above by stating that for the time-dependent load method, the minimum required capacity should include the capacity to power the engineered safety features. A minimum margin of 10 percent shall be added to the calculated storage requirement if the alternate conservative calculation discussed next is not used. Another method for calculating the stored diesel fuel oil supply, which is more conservative than the time-dependent load method, is to calculate the storage capacity by assuming that the diesel generator operates continuously for 7 days at its rated capacity.

The licensee provided in Enclosure 5 to the application a regulatory commitment to update the Final Safety Analysis Report during the next update following implementation of these amendments. In the commitment language, the licensee states that the calculations are based on the conservative assumption that the DG is operated continuously at capacity.

Since both methods described in ANSI N195-1976 are approved for use by the NRC staff in RG 1.137, and since the licensee calculates the volume of fuel oil in accordance with RG 1.137, Revision 0 or Revision 1, as applicable, the staff has reasonable assurance that the volume of fuel oil calculated by the licensee will meet the new duration-based limits specified in SR 3.8.3.1.

One variable used in both stored diesel fuel oil calculation methods is the fuel consumption rate. The property of diesel fuel oil having the most significant effect on the fuel consumption rate is the energy content (heating value) of the fuel. Standards exist that correlate the energy content to the fuel's American Petroleum Institute (API) gravity or absolute specific gravity. At a minimum, licensees calculate the required fuel oil storage values for their plants assuming the most limiting API gravity or absolute specific gravity and, therefore, the most limiting fuel energy content. As long as the fuel oil placed in the storage tank is within the API gravity range or absolute specific gravity range specified by the licensee, the calculations of fuel consumption and required stored volume remain valid. Current SR 3.8.3.3 requires new fuel oil to be tested in accordance with and maintained within the limits of TS 5.5.9, "Diesel Fuel Oil Testing Program," to verify that the fuel's API gravity or absolute specific gravity is within the range assumed in the diesel fuel oil consumption calculations.

The above methods provide assurance that the necessary quantity and quality of diesel fuel oil will continue to be maintained and calculated in accordance with NRC-approved methods. The calculation method used to determine the volume of fuel oil required is an acceptable method provided in RG 1.137 and continues to provide assurance that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met. Therefore, the NRC staff concludes that the proposed change to SR 3.8.3.1 is acceptable.

3.3 TS Bases Changes

The regulation in 10 CFR 50.36(a)(1) states that a summary statement of the bases or reasons for TSs, other than those covering administrative controls, shall also be included in the application but shall not become part of the TSs. Consistent with 10 CFR 50.36(a)(1), the licensee submitted corresponding TS Bases changes that provide the reasons for the proposed TSs changes. The NRC staff notes that the proposed TS Bases changes describe the bases for the affected TSs and follow the "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" (58 FR 39132); however, the NRC staff does not approve the license amendment request TS Bases that have been submitted as "information only."

3.4 Variations from the NRC-Approved TSTF Traveler

Licensee-Identified Differences with TSTF-501, Revision 1

In the license amendment request, the licensee proposed one variation from TSTF-501, Revision 1, as described below:

Variation 1: No changes associated with diesel generator lube oil inventory are included.

NRC Staff Evaluation of the Proposed Variation

Management of the DG lube oil inventory is not included as a proposed change in the license amendment request. While this is a variation to TSTF-501, Revision 1, the licensee will maintain the current requirements of TS 3.8.3 Actions table Condition B and SR 3.8.3.2 for lube oil. Because the current TS requirements remain unchanged for lube oil, this is acceptable.

3.5 Technical Conclusion

The NRC staff concludes that the replacement of the TS numerical volume requirements with durational requirements does not change the current plant configuration, the current volume requirements, or the current bases for DG fuel oil volume requirements. In accordance with 10 CFR 50.36(c)(2)(i), when an LCO is not met, the licensee must shut down the plant or follow any remedial actions permitted by the TSs until the LCO can be met. Condition A of the TS 3.8.3 Actions table will continue to require that the appropriate volume of stored diesel fuel oil be maintained. These are acceptable actions to take until the LCO can be met.

In addition, the proposed change to SR 3.8.3.1 continues to provide assurance that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met. The revised SR will continue to meet 10 CFR 50.36(c)(3) and is, therefore, acceptable.

In summary, the NRC staff finds that the proposed Susquehanna TS changes collectively provide reasonable assurance that the health and safety of the public will not be endangered.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments on June 11, 2019. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and change 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 previously issued a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding published in the *Federal Register* on January 30, 2019 (84 FR 497). 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) there is reasonable assurance that 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.

Principal Contributors: P. Snyder
L. Wheeler

Date: June 24, 2019

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT NOS. 272 AND 254 RE: ADOPT TSTF-501, REVISION 1, "RELOCATE STORED FUEL OIL AND LUBE OIL VOLUME VALUES TO LICENSEE CONTROL" (EPID L-2018-LLA-0496) DATED JUNE 24, 2019

DISTRIBUTION:

PUBLIC

RidsRgn1MailCenter

RidsACRS_MailCTR

RidsNrrDssStsb

RidsNrrDorlLpl1

RidsNrrLALRonewicz

RidsNrrPMSusquehanna

LWheeler, NRR

ADAMS Accession No.: ML19154A060

OFFICE	NRR/DORL/LPL1/PM	NRR/DORL/LPL1/LA	DSS/STSB/BC
NAME	JTobin	LRonewicz	PSnyder
DATE	06/06/2019	06/06/2019	05/28/2019
OFFICE	OGC – NLO	NRR/DORL/LPL1/BC	NRR/DORL/LPL1/PM
NAME	JWachutka	JDanna	JTobin
DATE	06/17/2019	06/21/2019	06/24/2019

OFFICIAL RECORD COPY