



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

February 10, 2015

Mr. Thomas A. Vehec
Vice President
NextEra Energy
Duane Arnold Energy Center
3277 DAEC Road
Palo, IA 52324-9785

SUBJECT: DUANE ARNOLD ENERGY CENTER - ISSUANCE OF AMENDMENT TO REVISE TECHNICAL SPECIFICATIONS TO ADOPT TECHNICAL SPECIFICATIONS TASK FORCE - 523, "GENERIC LETTER 2008-01, MANAGING GAS ACCUMULATION" (TAC NO. MF4358)

Dear Mr. Vehec:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 290 to Renewed Facility Operating License No. DPR-49 for the Duane Arnold Energy Center. The amendment consists of changes to the technical specifications (TSs) in response to your application dated June 23, 2014.

The amendment revises Surveillance Requirements (SRs) to verify that the system locations susceptible to gas accumulation are sufficiently filled with water and to provide allowances which permit performance of the verification. The changes address the concerns discussed in NRC Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" as described in NRC-approved Technical Specifications Task Force (TSTF) – 523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation."

T. Vehec

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A copy of the Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,



Mahesh L. Chawla, Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosures:

1. Amendment No. 290 to
License No. DPR-49
2. Safety Evaluation

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

NEXTERA ENERGY DUANE ARNOLD, LLC

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 290
License No. DPR-49

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by NextEra Energy Duane Arnold, LLC dated June 23, 2014, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and 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 rules and 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. DPR-49 is hereby amended to read as follows:

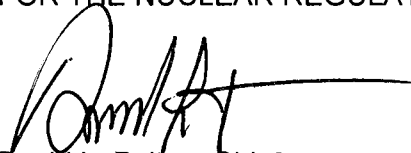
Enclosure 1

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 290, are hereby incorporated in the license. NextEra Energy Duane Arnold, LLC, shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 90 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'D. Pelton', with a long horizontal line extending to the right.

David L. Pelton, Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Operating
License No. DPR-49 and
Technical Specifications

Date of Issuance: February 10, 2015

ATTACHMENT TO LICENSE AMENDMENT NO. 290
RENEWED FACILITY OPERATING LICENSE NO. DPR-49
DOCKET NO. 50-331

Replace the following page of Renewed Facility Operating License DPR-49 with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

REMOVE

INSERT

- 3 -

- 3 -

Replace the following pages of 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

INSERT

3.4-17
3.4-19
3.5-4
3.5-5
3.5-10
3.5-13
3.6-29
3.6-31
3.9-12
3.9-15

3.4-17
3.4-19
3.5-4
3.5-5
3.5-10
3.5-13
3.6-29
3.6-31
3.9-12
3.9-15

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I; Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; 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

NextEra Energy Duane Arnold, LLC is authorized to operate the Duane Arnold Energy Center at steady state reactor core power levels not in excess of 1912 megawatts (thermal).

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 290, are hereby incorporated in the license. NextEra Energy Duane Arnold, LLC shall operate the facility in accordance with the Technical Specifications.

(a) For Surveillance Requirements (SRs) whose acceptance criteria are modified, either directly or indirectly, by the increase in authorized maximum power level in 2.C.(1) above, in accordance with Amendment No. 243 to Facility Operating License DPR-49, those SRs are not required to be performed until their next scheduled performance, which 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 No. 243.

(b) Deleted.

(3) Fire Protection Program

NextEra Energy Duane Arnold, LLC shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated August 5, 2011 (and supplements dated October 14, 2011, April 23, 2012, May 23, 2012, July 9, 2012, October 15, 2012, January 11, 2013, February 12, 2013, March 6, 2013, May 1, 2013, May 29, 2013, two supplements dated July 2, 2013, and supplements dated August 5, 2013 and August 28, 2013) and as approved in the safety evaluation report dated September 10, 2013. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.7.1</p> <p>-----NOTE----- Not required to be met until 2 hours after reactor steam dome pressure is < the RCIC Steam Supply Line Pressure – Low isolation pressure.</p> <p>-----</p> <p>Verify one required RHR shutdown cooling subsystem or recirculation pump is operating.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.4.7.2</p> <p>-----NOTE----- Not required to be performed until 12 hours after reactor steam dome pressure is < the RCIC Steam Supply Line Pressure – Low isolation pressure.</p> <p>-----</p> <p>Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

RHR Shutdown Cooling System — Cold Shutdown
3.4.8

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No RHR shutdown cooling subsystem in operation. <u>AND</u> No recirculation pump in operation.	B.1 Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation <u>AND</u> Once per 12 hours thereafter
	<u>AND</u> B.2 Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.8.1 Verify one required RHR shutdown cooling subsystem or one recirculation pump is operating.	In accordance with the Surveillance Frequency Control Program
SR 3.4.8.2 Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION		REQUIRED ACTION	COMPLETION TIME
N.	<p>Two or more low pressure ECCS subsystems inoperable for reasons other than Condition C or D.</p> <p><u>OR</u></p> <p>HPCI System and two or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>HPCI System and two or more low pressure ECCS subsystems inoperable.</p> <p><u>OR</u></p> <p>One ADS valve and two or more low pressure ECCS subsystems inoperable.</p> <p><u>OR</u></p> <p>One ADS valve and HPCI System and one low pressure ECCS subsystem inoperable.</p>	N.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY																
SR 3.5.1.2	<p>-----NOTE-----</p> <p>The low pressure coolant injection (LPCI) system may be considered OPERABLE during alignment and operation for decay heat removal in MODE 3, if capable of being manually realigned and not otherwise inoperable.</p> <p>-----NOTE-----</p> <p>Not required to be met for system vent flow paths opened under administrative control.</p> <p>Verify each ECCS injection/spray subsystem power operated and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	In accordance with the Surveillance Frequency Control Program																
SR 3.5.1.3	Verify a 100 day supply of nitrogen exists for each ADS accumulator.	In accordance with the Surveillance Frequency Control Program																
SR 3.5.1.4	Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified reactor pressure.	In accordance with the Inservice Testing Program																
	<table border="1"> <thead> <tr> <th><u>SYSTEM</u></th> <th><u>FLOW RATE</u></th> <th><u>NO. OF PUMPS</u></th> <th><u>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</u></th> </tr> </thead> <tbody> <tr> <td>Core</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Spray</td> <td>≥ 2718 gpm</td> <td>1</td> <td>≥ 113 psig</td> </tr> <tr> <td>LPCI</td> <td>≥ 4320 gpm</td> <td>1</td> <td>≥ 20 psig</td> </tr> </tbody> </table>	<u>SYSTEM</u>	<u>FLOW RATE</u>	<u>NO. OF PUMPS</u>	<u>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</u>	Core				Spray	≥ 2718 gpm	1	≥ 113 psig	LPCI	≥ 4320 gpm	1	≥ 20 psig	
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Core																		
Spray	≥ 2718 gpm	1	≥ 113 psig															
LPCI	≥ 4320 gpm	1	≥ 20 psig															

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.2	<p>Verify, for each required Core Spray (CS) subsystem, the:</p> <p>a. Suppression pool water level is ≥ 8.0 ft; or</p> <p>b. -----NOTE----- Only one required CS subsystem may take credit for this option during OPDRVs. -----</p> <p>Condensate storage tank water level in one CST is ≥ 11 ft or ≥ 7 ft in both CSTs.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	<p>Verify, for each required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	<p>-----NOTE----- One LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable. -----</p> <p>-----NOTE----- Not required to be met for system vent flow paths opened under administrative control. -----</p> <p>Verify each required ECCS subsystem power operated and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify the RCIC System locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.2	<p>-----NOTE----- Not required to be met for system vent flow paths opened under administrative control. -----</p> <p>Verify each RCIC System power operated and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.3	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure ≤ 1025 psig and ≥ 940 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.</p>	In accordance with the Inservice Testing Program
SR 3.5.3.4	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure ≤ 160 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify by administrative means each RHR suppression pool cooling subsystem manual, power operated and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.2.3.2	Verify each RHR pump develops a flow rate ≥ 4800 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the Inservice Testing Program
SR 3.6.2.3.3	Verify RHR suppression pool cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify by an air test that the suppression pool spray header and nozzles are unobstructed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.2.4.2	Verify RHR suppression pool spray subsystem locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. No RHR shutdown cooling subsystem in operation with reactor coolant temperature $\geq 150^{\circ}\text{F}$.</p>	<p>C.1 Verify reactor coolant circulation by an alternate method.</p> <p><u>AND</u></p> <p>C.2 Monitor reactor coolant temperature.</p>	<p>1 hour from discovery of no reactor coolant circulation</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>Once per hour</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.9.7.1 Verify one RHR shutdown cooling subsystem is operating when reactor coolant temperature is $\geq 150^{\circ}\text{F}$.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.9.7.2 Verify required RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify one RHR shutdown cooling subsystem is operating.	In accordance with the Surveillance Frequency Control Program
SR 3.9.8.2	Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.	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. 290

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-49

NEXTERA ENERGY DUANE ARNOLD, LLC

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

By application dated June 23, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14175B387), NextEra Energy Duane Arnold, LLC (the licensee), requested changes to the Technical Specifications (TSs) for the Duane Arnold Energy Center (DAEC). Specifically, the licensee requested to adopt U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specifications Task Force (TSTF) Standard Technical Specifications (STS) Change Traveler TSTF-523, Revision 2, "Generic Letter (GL) 2008-01, Managing Gas Accumulation" (ADAMS Accession No. ML13053A075), dated February 21, 2013.

The proposed changes would revise Surveillance Requirements (SRs) related to gas accumulation for the Emergency Core Cooling System (ECCS) and Reactor Core Isolation Cooling (RCIC) system. The proposed change would also add new SRs related to gas accumulation for the Residual Heat Removal (RHR) systems. TS Bases changes associated with these SRs would also be made.

The licensee stated that the license amendment request (LAR) is consistent with NRC-approved Traveler TSTF-523. The availability of this TS improvement was announced in the *Federal Register* on January 15, 2014 (79 FR 2700), as part of the Consolidated Line Item Improvement Process.

2.0 REGULATORY EVALUATION

2.1 Background

Gas accumulation in reactor systems can result in water hammer, pump cavitation, and pumping of non-condensable gas into the reactor vessel. These effects may result in the subject system being unable to perform its specified safety function. To address this issue, the NRC issued GL 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," dated January 11, 2008

(ADAMS Accession No. ML072910759). The industry and NRC staff agreed that a change to the STS and plant-specific TSs would be necessary to address some issues discussed in GL 2008-01. TSTF-523 contains changes to the TS SRs and TS Bases to address some of the concerns in GL 2008-01. The licensee proposed amending the DAEC TS using a plant-specific adoption of the TSTF-523 changes.

2.2 Technical Specification Changes

Changes were proposed for SRs 3.5.1.1; 3.5.1.2; 3.5.2.3; 3.5.2.4; 3.5.3.1; and 3.5.3.2, as well as the addition of new SRs 3.4.7.2; 3.4.8.2; 3.6.2.3.3; 3.6.2.4.2; 3.9.7.2; and 3.9.8.2 to TS 3.4.7, "RHR Shutdown Cooling System – Hot Shutdown," TS 3.4.8, "RHR Shutdown Cooling System – Cold Shutdown," TS 3.5.1, "ECCS – Operating," TS 3.5.2, "ECCS – Shutdown," TS 3.5.3, "RCIC System," TS 3.6.2.3, "RHR Suppression Pool Cooling," TS 3.6.2.4, "RHR Suppression Pool Spray," TS 3.9.7, "RHR – High Water Level," and TS 3.9.8, "RHR – Low Water Level," respectively. Associated Bases changes were proposed for the respective limiting condition for operations (LCOs), SR changes, and SR additions.

2.3 Regulatory Review

The regulations in Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 or similar plant-specific principal design criteria provide design requirements. Appendix B to 10 CFR Part 50, the TSs, and the licensee quality assurance programs provide operating requirements. The regulatory requirements of 10 CFR Part 50, Appendix A, that are applicable to gas management in the subject systems include: General Design Criteria (GDC) 1, 34, 35, 36, 37, 38, 39, and 40. GDC 1 requires that the subject systems be designed, fabricated, erected, and tested to quality standards. GDC 34 requires an RHR system designed to maintain specified acceptable fuel design limits and to meet design conditions that are not exceeded if a single failure occurs and specified electrical power systems fail. GDC 35, 36, and 37 require an ECCS design that meets performance, inspection, and testing requirements. Additionally, the regulations in 10 CFR 50.46 provide specified ECCS performance criteria. GDC 38, 39, and 40 require a Containment Heat Removal System (CHRS) design that meets performance, inspection, and testing requirements.

Duane Arnold was not licensed to the 10 CFR 50, Appendix A, GDCs. The DAEC design criteria are discussed in the Updated Final Safety Analysis Report (UFSAR) Section 3.1, Conformance to AEC GDC for Nuclear Power Plants. The DAEC design criteria that equates to GDC 1 are addressed in UFSAR Section 3.1.2.1, Group I, Overall Requirements and the design criteria that equates to GDC 34 through GDC 40 are addressed in UFSAR Section 3.1.2.4 Group IV, Fluid System, specifically, subsections 3.1.2.4.5 through 3.1.2.4.11. These differences do not alter the conclusion that the proposed change is applicable to Duane Arnold.

Quality assurance criteria provided in 10 CFR Part 50, Appendix B, that apply to gas management in the subject systems include: Criteria III, V, XI, XVI, and XVII. Criteria III and V require measures to ensure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2, "Definitions," and as specified in the license application, are correctly translated into controlled specifications, drawings, procedures, and instructions. Criterion XI requires a test program to ensure that the subject systems will perform satisfactorily in service and requires that test results shall be documented and evaluated to ensure that test

requirements have been satisfied. Criterion XVI requires measures to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances, are promptly identified and corrected, and that significant conditions adverse to quality are documented and reported to management. Criterion XVII requires maintenance of records of activities affecting quality.

The NRC's regulatory requirements related to the content of the TSs are contained in 10 CFR 50.36(c). The regulations at 10 CFR 50.36 require that the TSs include items in the following categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) SRs; (4) design features; and (5) administrative controls. SRs are requirements relating 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 LCOs will be met. Typically, TS Section 5 requires that licensees establish, implement, and maintain written procedures covering the applicable procedures recommended in Appendix A to Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)." Appendix A to RG 1.33 identifies instructions for filling and venting the ECCS and DHR system, as well as for draining and refilling heat exchangers. Standard TSs and most licensees' TSs include SRs to verify that at least some of the subject systems piping is filled with water.

The NRC's guidance for the format and content of licensee TSs can be found in NUREG-1433, "Standard Technical Specifications General Electric Plants BWR/4."

Regulatory guidance for the NRC staff's review of CHR/Ss, ECCS, and RHR systems is provided in the following revisions and sections of NUREG-0800, "Standard Review Plan (SRP) for the Review of Safety Analysis Reports for Nuclear Power Plants: Light-Water Reactor Edition" during the review.

- Revision 3 of SRP, Section 6.2.2, "Containment Heat Removal Systems," dated March 2007 (ADAMS Accession No. ML070160661), provides the procedures concerning the review of CHR under post-accident conditions to help ensure compliance with GDC 38, 39, and 40.
- Revision 3 of SRP, Section 6.3, "Emergency Core Cooling System," dated March 2007 (ADAMS Accession No. ML070550068), provides the procedures concerning the review of ECCS to help ensure compliance with GDC 35, 36, and 37.
- Revision 5 of SRP, Section 5.4.7, "Residual Heat Removal System," dated May 2010 (ADAMS Accession Number ML100680577), provides the procedures concerning the review of RHR system as it is used to cool the Reactor Coolant System during and following shutdown to help ensure compliance with GDC 34.

3.0 TECHNICAL EVALUATION

The NRC staff evaluated the licensee's proposed change against the applicable regulatory guidance in the STS, as modified by TSTF-523. The proposed change adopted the TS format and content, to the extent practicable, contained in the changes made to NUREG-1433,

“Standard Technical Specifications General Electric Plants BWR/4 by TSTF-523”. The NRC staff found that the proposed change is consistent with guidance in the STS, as modified by TSTF-523.

The NRC staff compared the proposed changes to the existing SRs, as well as the regulatory requirements of 10 CFR 50.36.

The licensee proposed the following TS changes:

(1) Add SR 3.4.7.2, which states, “Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water,” together with a note that states “Not required to be performed until 12 hours after reactor steam dome pressure is < the RCIC Steam Supply Line Pressure – Low isolation pressure,” and a frequency of “In accordance with the Surveillance Frequency Control Program.”

(2) Add SR 3.4.8.2, which states, “Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water,” with a frequency of “In accordance with the Surveillance Frequency Control Program.”

(3) Revise the language for SR 3.5.1.1 from “Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve” to “Verify, for each ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.”

(4) Add a note to SR 3.5.1.2, which states, “Not required to be met for system vent flow paths opened under administrative control.”

(5) Revise the language for SR 3.5.2.3 from “Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve,” to “Verify, for each ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.”

(6) Add a note to SR 3.5.2.4, which states, “Not required to be met for system vent flow paths opened under administrative control.”

(7) Revise the language for SR 3.5.3.1 from “Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve,” to “Verify the RCIC system locations susceptible to gas accumulation are sufficiently filled with water.”

(8) Add a note to SR 3.5.3.2, which states, “Not required to be met for system vent flow paths opened under administrative control.”

(9) Add SR 3.6.2.3.3, which states, “Verify RHR suppression pool cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water,” with a frequency of “In accordance with the Surveillance Frequency Control Program.”

(10) Add SR 3.6.2.4.2, which states, “Verify RHR suppression pool cooling spray subsystem locations susceptible to gas accumulation are sufficiently filled with water,”

with a frequency of "In accordance with the Surveillance Frequency Control Program."

(11) Add SR 3.9.7.2, which states, "Verify required RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water," with a frequency of "In accordance with the Surveillance Frequency Control Program."

(12) Add SR 3.9.8.2, which states, "Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water" with a frequency of "In accordance with the Surveillance Frequency Control Program."

(13) Add and revise the affected TS SR Bases language to state the purpose of the SR, discuss methods of identifying locations susceptible to gas accumulation, discuss gas volume acceptance criteria, discuss methods for performing the SR, consistent with licensee actions and on-going programs related to GL 2008-01, and describe the SR frequency.

(14) Add and revise TS LCO Bases language to describe what is required for Operability of the systems and reiterate the importance of gas management.

The new language for the SRs was developed using licensee responses to GL 2008-01 and the NRC discussion contained in Task Interface Agreement (TIA) 2008-03, "Emergency Core Cooling System Voiding Relative to Compliance with SR 3.5.1.1, 3.5.2.3, and 3.5.3.1," dated October 21, 2008 (ADAMS Accession No. ML082560209). Many of the GL 2008-01, responses stated that licensees identified system locations susceptible to gas accumulation. In the TIA, the NRC stated that the intent of the TS SRs, which state "full of water," may be met if the licensee can establish, through an Operability Determination, that there is a reasonable expectation that the system in question will perform its specified safety function. Therefore the phrase, "sufficiently filled with water," was recommended for the proposed TS changes. In the TS, "sufficiently filled with water" is understood to mean "sufficiently filled with water to support Operability." The regulation at 10 CFR 50.36(c)(3) states that one of the purposes of the SR is to verify that the LCO is met. Therefore, the new SR language, "Verify the [system name] locations susceptible to gas accumulation are sufficiently filled with water," is acceptable since this language will allow the licensee to make a conclusion as to whether or not a system is operable.

The language for the notes that state that the SR does not have to be performed until 12 hours after entering Mode 3 with reactor steam dome pressure < [the system cut in permissive pressure] for boiling water reactors is acceptable because the note provides a limited time to perform the Surveillance after entering the Applicability of the LCO; however, under the STS usage rules (STS Section 1.4), the requirement to manage gas accumulation is not affected. Licensees must have confidence that the SR can be met or the LCO must be declared not met.

The language for the notes that allow the SRs to not be met for system vent flow paths opened under administrative control is necessary to allow the licensee to credit administratively controlled manual action to close the system vent flow path in order to maintain system Operability during system venting and performance of the proposed gas accumulation SR. Therefore, these notes are acceptable.

The NRC staff found that the proposed SRs meet the regulatory requirements of 10 CFR 50.36 because they provide assurance that the necessary quality of systems and components will be maintained and that the LCOs will be met. Therefore, the staff finds the proposed change acceptable.

The regulation at 10 CFR 50.36(a)(1) states: "A summary statement of the bases or reasons for such specifications ... shall also be included in the application, but shall not become part of the technical specifications." The licensee may make changes to the TS Bases without prior NRC staff review and approval in accordance with the TS Bases Control Program TS 5.5.10. Accordingly, along with the proposed TS changes, the licensee also submitted TS Bases changes corresponding to the proposed TS changes. The NRC staff determined that TS Bases changes are consistent with the proposed TS changes and provide the purpose for each requirement in the specification consistent with the Commission's Final Policy Statement on TS Improvements for Nuclear Power Reactors dated July 22, 1993 (58 FR 39132).

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATIONS

This amendment changes 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 amendment involves 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 amendment involves no significant hazards consideration, and there has been no public comment on such finding (79 FR 58820, September 30, 2014). Accordingly, the amendment meets 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 amendment.

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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Matthew E. Hamm, NRR/DSS/STSB

Date: February 10, 2015

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A copy of the Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Mahesh L. Chawla, Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosures:

1. Amendment No. 290 to License No. DPR-49
2. Safety Evaluation

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***via SE dated 12/22/14 – ML14342A744**

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DATE	2/06/2015	02/10/2015	02/10/2015	

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