



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

October 28, 2015

Mr. Fadi Diya
Senior Vice President and
Chief Nuclear Officer
Union Electric Company
P.O. Box 620
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT, UNIT 1 - ISSUANCE OF AMENDMENT RE:
REVISION OF TECHNICAL SPECIFICATIONS TO ADOPT TSTF-523-A,
REVISION 2, "GENERIC LETTER 2008-01, MANAGING GAS
ACCUMULATION" (CAC NO. MF5856)

Dear Mr. Diya:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 213 to Renewed Facility Operating License No. NPF-30 for the Callaway Plant, Unit 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated March 12, 2015.

The amendment revises the TS requirements to address NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," as described in Technical Specification Task Force (TSTF) Traveler TSTF-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation."

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

Sincerely,

A handwritten signature in black ink, appearing to read "L. John Klos".

L. John Klos, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosures:

1. Amendment No. 213 to NPF-30
2. Safety Evaluation

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

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 213
License No. NPF-30

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Union Electric Company (UE, the licensee), dated March 12, 2015, 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 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.

Enclosure 1

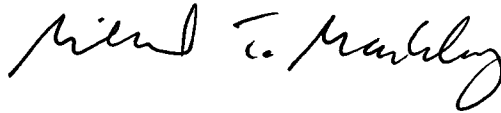
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-30 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan*

The Technical Specifications contained in Appendix A, as revised through Amendment No. 213 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This 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



Michael T. Markley, Chief
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. NPF-30 and
Technical Specifications

Date of Issuance: October 28, 2015

ATTACHMENT TO LICENSE AMENDMENT NO. 213

RENEWED FACILITY OPERATING LICENSE NO. NPF-30

DOCKET NO. 50-483

Replace the following pages of the Renewed Facility Operating License No. NPF-30 and 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.

Renewed Facility Operating License

REMOVE

-3-

INSERT

-3-

Technical Specifications

REMOVE

Table of Contents – pages 2 to 3
3.4-11 to 3.4-45
3.5-5
3.6-19 to 3.6-22
3.9-10
3.9-13

INSERT

Table of Contents – pages 2 to 3
3.4-11 to 3.4-46
3.5-5
3.6-19 to 3.6-23
3.9-10
3.9-13

- (3) UE, 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 sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (4) UE, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source of 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) UE, 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 renewed 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

UE is authorized to operate the facility at reactor core power levels not in excess of 3565 megawatts thermal (100% power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan*

The Technical Specifications contained in Appendix A, as revised through Amendment No. 213 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Environmental Qualification (Section 3.11, SSER #3)**

Deleted per Amendment No. 169.

* Amendments 133, 134, & 135 were effective as of April 30, 2000 however these amendments were implemented on April 1, 2000.

** The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required loops inoperable. <u>OR</u> No RCS or RHR loop in operation.	B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1. <u>AND</u> B.2 Initiate action to restore one loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.6.1 Verify one RHR or RCS loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.6.2 Verify SG secondary side narrow range water levels are $\geq 7\%$ for required RCS loops.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.6.3	Verify correct breaker alignment and indicated power are available to the required pump that is not in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.6.4	<p>----- NOTE -----</p> <p>Not required to be performed until 12 hours after entering MODE 4.</p> <p>-----</p> <p>Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.</p>	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5, Loops Filled

LCO 3.4.7 One residual heat removal (RHR) loop shall be OPERABLE and in operation, and either:

- a. One additional RHR loop shall be OPERABLE; or
- b. The secondary side wide range water level of at least two steam generators (SGs) shall be $\geq 86\%$.

----- NOTES -----

1. The RHR pump of the loop in operation may be removed from operation for ≤ 1 hour per 8 hour period provided:
 - a. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
 2. One required RHR loop may be inoperable for up to 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.
 3. No reactor coolant pump shall be started with any RCS cold leg temperature $\leq 275^{\circ}\text{F}$ unless the secondary side water temperature of each SG is $\leq 50^{\circ}\text{F}$ above each of the RCS cold leg temperatures.
 4. All RHR loops may be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation.
-

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One RHR loop inoperable.</p> <p><u>AND</u></p> <p>Required SGs secondary side water levels not within limits.</p>	<p>A.1 Initiate action to restore a second RHR loop to OPERABLE status.</p> <p><u>OR</u></p> <p>A.2 Initiate action to restore required SG secondary side water levels to within limits.</p>	<p>Immediately</p> <p>Immediately</p>
<p>B. Required RHR loops inoperable.</p> <p><u>OR</u></p> <p>No RHR loop in operation.</p>	<p>B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>B.2 Initiate action to restore one RHR loop to OPERABLE status and operation.</p>	<p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify one RHR loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.2	Verify SG secondary side wide range water level is $\geq 86\%$ in required SGs.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.3	Verify correct breaker alignment and indicated power are available to the required RHR pump that is not in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.4	Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

----- NOTES -----

1. All RHR pumps may be removed from operation for ≤ 1 hour provided:
 - a. The core outlet temperature is maintained at least 10°F below saturation temperature.
 - b. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - c. No draining operations to further reduce the RCS water volume are permitted.
 2. One RHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.
-

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required RHR loops inoperable.</p> <p><u>OR</u></p> <p>No RHR loop in operation.</p>	<p>B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>B.2 Initiate action to restore one RHR loop to OPERABLE status and operation.</p>	<p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.8.1 Verify one RHR loop is in operation.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.4.8.2 Verify correct breaker alignment and indicated power are available to the required RHR pump that is not in operation.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.4.8.3 Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

- a. Pressurizer water level $\leq 92\%$; and
- b. Two groups of backup pressurizer heaters OPERABLE with the capacity of each group ≥ 150 kW.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limit.	A.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	A.2 Fully insert all rods.	6 hours
	<u>AND</u>	
	A.3 Place Rod Control System in a condition incapable of rod withdrawal.	6 hours
	<u>AND</u>	
	A.4 Be in MODE 4.	12 hours
B. One required group of backup pressurizer heaters inoperable.	B.1 Restore required group of backup pressurizer heaters to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	C.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level is $\leq 92\%$.	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.2	Verify capacity of each required group of backup pressurizer heaters is ≥ 150 kW.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10 Three pressurizer safety valves shall be OPERABLE with lift settings ≥ 2411 psig and ≤ 2509 psig.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all RCS cold leg temperatures $> 275^\circ\text{F}$.

----- NOTES -----
The lift settings are not required to be within the LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for 54 hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pressurizer safety valve inoperable.	A.1 Restore valve to OPERABLE status.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
<u>OR</u>	<u>AND</u>	
Two or more pressurizer safety valves inoperable.	B.2 Be in MODE 4 with any RCS cold leg temperature $\leq 275^\circ\text{F}$.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify each pressurizer safety valve is OPERABLE in accordance with the Inservice Testing Program. Following testing, lift settings shall be within $\pm 1\%$ of 2460 psig.	In accordance with the Inservice Testing Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

LCO 3.4.11 Each PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----- NOTE -----
Separate Condition entry is allowed for each PORV and each block valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more PORVs inoperable solely due to excessive seat leakage.	A.1 Close and maintain power to associated block valve.	1 hour
B. One PORV inoperable for reasons other than excessive seat leakage.	B.1 Close associated block valve.	1 hour
	<u>AND</u>	
	B.2 Remove power from associated block valve.	1 hour
	<u>AND</u>	
	B.3 Restore PORV to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One block valve inoperable.</p>	<p>----- NOTE ----- Required Actions do not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2. -----</p>	
	<p>C.1 Place associated PORV in manual control.</p> <p><u>AND</u></p> <p>C.2 Restore block valve to OPERABLE status.</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>6 hours</p> <p>12 hours</p>
<p>E. Two PORVs inoperable for reasons other than excessive seat leakage.</p>	<p>E.1 Close associated block valves.</p> <p><u>AND</u></p>	<p>1 hour</p>
	<p>E.2 Remove power from associated block valves.</p> <p><u>AND</u></p>	<p>1 hour</p>
	<p>E.3 Be in MODE 3.</p> <p><u>AND</u></p>	<p>6 hours</p>
	<p>E.4 Be in MODE 4.</p>	<p>12 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. More than one block valve inoperable.</p>	<p>----- NOTE ----- Required Action F.1 does not apply when block valve is inoperable solely as a result of complying with Required Action B.2 or E.2. -----</p> <p>F.1 Restore one block valve to OPERABLE status.</p>	<p>2 hours</p>
<p>G. Required Action and associated Completion Time of Condition F not met.</p>	<p>G.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>G.2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	<p>----- NOTE -----</p> <p>Not required to be performed with block valve closed in accordance with the Required Actions of this LCO.</p> <p>-----</p> <p>Perform a complete cycle of each block valve.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.2	Perform a complete cycle of each PORV.	In accordance with the Inservice Testing Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Cold Overpressure Mitigation System (COMS)

LCO 3.4.12 COMS shall be OPERABLE with a maximum of zero safety injection pumps, one Emergency Core Cooling System (ECCS) centrifugal charging pump, and the normal charging pump capable of injecting into the RCS and the accumulators isolated and one of the following pressure relief capabilities:

- a. Two power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR, or
- b. Two residual heat removal (RHR) suction relief valves with setpoints ≥ 436.5 psig and ≤ 463.5 psig, or
- c. One PORV with a lift setting within the limits specified in the PTLR and one RHR suction relief valve with a setpoint ≥ 436.5 psig and ≤ 463.5 psig, or
- d. The RCS depressurized and an RCS vent of ≥ 2.0 square inches.

----- NOTES -----

1. Two ECCS centrifugal charging pumps may be made capable of injecting for ≤ 1 hour for pump swap operations.
 2. One or more safety injection pumps may be made capable of injecting in MODES 5 and 6 when the RCS water level is below the top of the reactor vessel flange for the purpose of protecting the decay heat removal function.
 3. Accumulator may be unisolated when accumulator pressure is less than the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.
-

APPLICABILITY: MODE 4 with any RCS cold leg temperature $\leq 275^{\circ}\text{F}$,
MODE 5,
MODE 6 when the reactor vessel head is on.

ACTIONS

----- NOTE -----
 LCO 3.0.4.b is not applicable when entering MODE 4.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more safety injection pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of zero safety injection pumps are capable of injecting into the RCS.	Immediately
B. Two ECCS centrifugal charging pumps capable of injecting into the RCS.	B.1 Initiate action to verify a maximum of one ECCS centrifugal charging pump and the normal charging pump capable of injecting into the RCS.	Immediately
C. An accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	C.1 Isolate affected accumulator.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Required Action and associated Completion Time of Condition C not met.</p>	<p>D.1 Increase all RCS cold leg temperatures to > 275°F.</p> <p><u>OR</u></p> <p>D.2 Depressurize affected accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.</p>	<p>12 hours</p> <p>12 hours</p>
<p>E. One required RCS relief valve inoperable in MODE 4.</p>	<p>E.1 Restore required RCS relief valve to OPERABLE status.</p>	<p>7 days</p>
<p>F. One required RCS relief valve inoperable in MODE 5 or 6.</p>	<p>F.1 Restore required RCS relief valve to OPERABLE status.</p>	<p>24 hours</p>
<p>G. Two required RCS relief valves inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A, B, D, E, or F not met.</p> <p><u>OR</u></p> <p>COMS inoperable for any reason other than Condition A, B, C, D, E, or F.</p>	<p>G.1 Depressurize RCS and establish RCS vent of ≥ 2.0 square inches.</p>	<p>12 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify a maximum of zero safety injection pumps are capable of injecting into the RCS.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.2	Verify a maximum of one ECCS centrifugal charging pump and the normal charging pump capable of injecting into the RCS.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.3	Verify each accumulator is isolated when accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.4	Verify RHR suction isolation valves are open for each required RHR suction relief valve.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.5	Verify required RCS vent ≥ 2.0 square inches open.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.6	Verify PORV block valve is open for each required PORV.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.7	Not used.	
SR 3.4.12.8	<p>----- NOTE -----</p> <p>Not required to be performed until 12 hours after decreasing any RCS cold leg temperature to $\leq 275^{\circ}\text{F}$.</p> <p>-----</p> <p>Perform a COT on each required PORV, excluding actuation.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.9	Perform CHANNEL CALIBRATION for each required PORV actuation channel.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

- a. No pressure boundary LEAKAGE;
- b. 1 gpm unidentified LEAKAGE;
- c. 10 gpm identified LEAKAGE; and
- d. 150 gallons per day primary to secondary LEAKAGE through any one steam generator (SG).

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Pressure boundary LEAKAGE exists. <u>OR</u> Primary to secondary LEAKAGE not within limit.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.13.1 ----- NOTES -----</p> <p>1. Not required to be performed until 12 hours after establishment of steady state operation.</p> <p>2. Not applicable to primary to secondary LEAKAGE</p> <p>-----</p> <p>Verify RCS operational LEAKAGE is within limits by performance of RCS water inventory balance.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.4.13.2 ----- NOTE -----</p> <p>Not required to be performed until 12 hours after establishment of steady state operation.</p> <p>-----</p> <p>Verify primary to secondary LEAKAGE is \leq 150 gallons per day through any one SG.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.14 Leakage from each RCS PIV shall be within limit.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except valves in the residual heat removal (RHR) flow path when in, or during the transition to or from, the RHR mode of operation.

ACTIONS

NOTES

1. Separate Condition entry is allowed for each flow path.
2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more flow paths with leakage from one or more RCS PIVs not within limit.</p>	<p>A.1</p> <p>----- NOTE ----- Each valve used to satisfy Required Action A.1 must have been verified to meet SR 3.4.14.1 and be in the reactor coolant pressure boundary.</p> <p>-----</p> <p>Isolate the high pressure portion of the affected system from the low pressure portion by use of one deactivated remote manual or check valve.</p>	<p>4 hours</p>
	<p><u>AND</u></p> <p>A.2</p> <p>Restore RCS PIV to within limits.</p>	<p>72 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours
C. RHR suction isolation valve interlock function inoperable.	C.1 Isolate the affected penetration by use of one deactivated remote manual valve.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.14.1</p> <p>----- NOTES -----</p> <ol style="list-style-type: none"> 1. Not required to be performed in MODES 3 and 4. 2. Not required to be performed on the RCS PIVs located in the RHR flow path when in the shutdown cooling mode of operation. 3. RCS PIVs actuated during the performance of this Surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided. <p>-----</p> <p>Verify leakage from each RCS PIV is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure ≥ 2215 psig and ≤ 2255 psig.</p>	<p>In accordance with the Inservice Testing Program</p> <p><u>AND</u></p> <p>In accordance with the Surveillance Frequency Control Program</p> <p><u>AND</u></p> <p>Prior to entering MODE 2 whenever the unit has been in MODE 5 for 7 days or more and if leakage testing has not been performed in the previous 9 months</p> <p><u>AND</u></p> <p>(continued)</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.14.1 (continued)	Within 24 hours following check valve actuation due to flow through the valve
SR 3.4.14.2 Verify RHR suction isolation valve interlock prevents the valves from being opened with a simulated or actual RCS pressure signal \geq 425 psig except when the valves are open to satisfy LCO 3.4.12.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

- a. The containment sump level and flow monitoring system;
- b. One containment atmosphere particulate radioactivity monitor; and
- c. The containment cooler condensate monitoring system.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Required containment sump level and flow monitoring system inoperable.</p>	<p>A.1 ----- NOTE ----- Not required until 12 hours after establishment of steady state operation. ----- Perform SR 3.4.13.1.</p>	<p>Once per 24 hours</p>
	<p><u>AND</u> A.2 Restore required containment sump level and flow monitoring system to OPERABLE status.</p>	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required containment atmosphere particulate radioactivity monitor inoperable.	B.1.1 Analyze samples of the containment atmosphere. <u>OR</u>	Once per 24 hours
	B.1.2 ----- NOTE ----- Not required until 12 hours after establishment of steady state operation. -----	
	Perform SR 3.4.13.1. <u>AND</u>	Once per 24 hours
	B.2.1 Restore required containment atmosphere particulate radioactivity monitor to OPERABLE status.	30 days
	<u>OR</u> B.2.2 Verify containment air cooler condensate monitoring system is OPERABLE.	30 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere particulate radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.2	Perform COT of the required containment atmosphere particulate radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.3	Perform CHANNEL CALIBRATION of the required containment sump level and flow monitoring system.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.4	Perform CHANNEL CALIBRATION of the required containment atmosphere particulate radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.5	Perform CHANNEL CALIBRATION of the required containment cooler condensate monitoring system.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 RCS DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133 specific activity shall be within limits.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. DOSE EQUIVALENT I-131 not within limit.</p>	<p>----- NOTE ----- LCO 3.0.4.c is applicable. -----</p> <p>A.1 Verify DOSE EQUIVALENT I-131 $\leq 60 \mu\text{Ci/gm}$.</p> <p><u>AND</u></p> <p>A.2 Restore DOSE EQUIVALENT I-131 to within limit.</p>	<p>Once per 4 hours</p> <p>48 hours</p>
<p>B. DOSE EQUIVALENT XE-133 not within limit.</p>	<p>----- NOTE ----- LCO 3.0.4.c is applicable. -----</p> <p>B.1 Restore DOSE EQUIVALENT XE-133 to within limit.</p>	<p>48 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. <u>OR</u> DOSE EQUIVALENT I-131 > 60 $\mu\text{Ci/gm}$.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.16.1 ----- NOTE ----- Only required to be performed in MODE 1. ----- Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity $\leq 225 \mu\text{Ci/gm}$.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.4.16.2 ----- NOTE ----- Only required to be performed in MODE 1. ----- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity $\leq 1.0 \mu\text{Ci/gm}$.</p>	<p>In accordance with the Surveillance Frequency Control Program</p> <p><u>AND</u></p> <p>Between 2 and 6 hours after a THERMAL POWER change of $\geq 15\%$ RTP within a 1 hour period</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Steam Generator (SG) Tube Integrity

LCO 3.4.17 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube repair criteria shall be plugged in accordance with Steam Generator Program.

APPLICABILITY: MODES 1 2, 3, and 4.

ACTIONS

----- NOTE -----
Separate Condition entry is allowed for each SG tube.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more SG tubes satisfying the tube repair criteria and not plugged in accordance with the Steam Generator Program.</p>	<p>A.1 Verify tube integrity of the affected tube(s) is maintained until the next refueling outage or inspection.</p>	<p>7 days</p>
	<p><u>AND</u></p> <p>A.2 Plug the affected tube(s) in accordance with the Steam Generator Program.</p>	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>SG tube integrity not maintained.</p>	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.17.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.17.2	Verify that each inspected SG tube that satisfies the tube repair criteria is plugged in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection

SURVEILLANCE REQUIREMENTS

SURVEILLANCE			FREQUENCY
SR 3.5.2.1	Verify the following valves are in the listed position with power to the valve operator removed.		In accordance with the Surveillance Frequency Control Program
<u>Number</u>	<u>Position</u>	<u>Function</u>	
BNHV8813	Open	Safety Injection to RWST Isolation Valve	
EMHV8802A	Closed	SI Hot Legs 2 & 3 Isolation Valve	
EMHV8802B	Closed	SI Hot Legs 1 & 4 Isolation Valve	
EMHV8835	Open	Safety Injection Cold Leg Isolation Valve	
EJHV8840	Closed	RHR/SI Hot Leg Recirc Isolation Valve	
EJHV8809A	Open	RHR to Accum Inject Loops 1 & 2 Isolation Valve	
EJHV8809B	Open	RHR to Accum Inject Loops 3 & 4 Isolation Valve	
SR 3.5.2.2	<p>----- NOTE -----</p> <p>Not required to be met for system vent flow paths opened under administrative control.</p> <p>-----</p> <p>Verify each ECCS 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.</p>		In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water.		In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.		In accordance with the Inservice Testing Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	D.2 Be in MODE 5.	36 hours
E. Two containment spray trains inoperable. <u>OR</u> Two containment cooling trains inoperable.	E.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	E.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.6.1 ----- NOTE ----- Not required to be met for system vent flow paths opened under administrative control. ----- Verify each containment spray 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.</p>	In accordance with the Surveillance Frequency Control Program
<p>SR 3.6.6.2 Operate each containment cooling train fan unit for ≥ 15 minutes.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.3	Verify each containment cooling train cooling water flow rate is ≥ 2200 gpm.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.5	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.7	Verify each containment cooling train starts automatically and minimum cooling water flow rate is established on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.8	Verify each spray nozzle is unobstructed.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.9	Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.7 Recirculation Fluid pH Control (RFPC) System

LCO 3.6.7 The RFPC System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RFPC System inoperable.	A.1 Restore RFPC System to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.7.1 Verify the integrity of the RFPC System.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.7.2	Verify the RFPC System ensures an equilibrium sump pH ≥ 7.1 .	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RHR loop requirements not met. (continued)	A.3 Initiate action to satisfy RHR loop requirements.	Immediately
	<p><u>AND</u></p> A.4 Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.5.1 Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 1000 gpm.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.2 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.9.6.2	Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.9.6.3	Verify RHR loop 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. 213 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-30

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

1.0 INTRODUCTION

By application dated March 12, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15071A403), Union Electric Company (the licensee) requested changes to Renewed Facility Operating License No. NPF-30 for the Callaway Plant, Unit 1 (Callaway Plant). The licensee proposes to revise the Technical Specification (TS) requirements in order to address U.S. Nuclear Regulatory Commission (NRC) Generic Letter (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), as described in NRC-approved Technical Specification Task Force (TSTF) Standard Technical Specifications (STS) Change Traveler TSTF-523-A, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation" (ADAMS Accession No. ML13053A075).

The proposed changes would revise TS Surveillance Requirements (SRs) related to gas accumulation for the emergency core cooling system (ECCS). The proposed change would also add new SRs related to gas accumulation for the residual heat removal (RHR), shutdown cooling, and containment spray (CS) systems. The licensee also proposed TS Bases changes consistent with these SRs.

In its application, the licensee stated that it has reviewed the information contained in the NRC's model safety evaluation dated December 23, 2013 (ADAMS Accession No. ML13255A169), and that the license amendment request is not proposing any variations or deviations from the TS described in NRC-approved TSTF-523-A, Revision 2.

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. The NRC issued GL 2008-01 in January 2008 to address the issue of gas accumulation in ECCS, decay heat removal or RHR at Callaway Plant, and CS systems. The industry and NRC staff agreed that a change to the STS and plant-specific TS would be necessary to address some issues discussed in GL 2008-01. TSTF-523-A, Revision 2 contains changes to the TS SRs and TS Bases to address some of the concerns in GL 2008-01. The licensee proposed amending the Callaway Plant TSs using a plant-specific adoption of the TSTF-523-A, Revision 2 changes.

2.2 Technical Specification Changes

The licensee proposed changes to SRs 3.5.2.2, 3.5.2.3, and 3.6.6.1, as well as the addition of new SRs 3.4.6.4, 3.4.7.4, 3.4.8.3, 3.6.6.9, 3.9.5.2, and 3.9.6.3 to TS 3.4.6, "RCS [Reactor Coolant System] Loops - MODE 4," TS 3.4.7, "RCS Loops - MODE 5, Loops Filled," TS 3.4.8, "RCS Loops - MODE 5, Loops Not Filled," TS 3.5.2, "ECCS – Operating," TS 3.6.6, "Containment Spray and Cooling Systems," TS 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation – High Water Level," and TS 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level," respectively.

2.3 Regulatory Review

The regulations in Appendix A, "General Design Criteria for Nuclear Power Plants," of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 or similar plant-specific principal design criteria provide design requirements. Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," 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, "Quality standards and records," requires that the subject systems be designed, fabricated, erected, and tested to quality standards. GDC 34, "Residual heat removal," 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, "Emergency core cooling," GDC 36, "Inspection of emergency core cooling system," and GDC 37, "Testing of emergency core cooling system," require an ECCS design that meets performance, inspection, and testing requirements. Additionally, the regulations in 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," provide specified ECCS performance criteria. GDC 38, "Containment heat removal," GDC 39, "Inspection of containment heat removal system," and GDC 40, "Testing of containment heat removal system," require a containment heat removal system design that meets performance, inspection, and testing requirements.

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. Criterion III, "Design Control," and Criterion V, "Instructions, Procedures, and Drawings," 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, "Test Control," 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, "Corrective Action," 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, "Quality Assurance Records," 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. Surveillance requirements 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 NRC 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 decay heat removal system, as well as for draining and refilling heat exchangers. The STS and most licensee TSs include SRs to verify that at least some of the subject systems piping is filled with water. Callaway Plant's TS 5.4.1 requires that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in RG 1.33, Revision 2, Appendix A, February 1978 (ADAMS Accession No. ML003739995). The NRC's guidance for the format and content of licensee TSs can be found in NUREG-1431, Revision 4, "Standard Technical Specifications - Westinghouse Plants," April 2012 (STS) (ADAMS Accession No. ML12100A222).

NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," (SRP), is not the regulatory basis of the proposed TSs changes, and the licensee is not required to confirm that the SRP guidance is applicable to the Callaway Plant.

Regulatory guidance for the NRC staff's review of containment heat removal systems, ECCS, and RHR systems is provided in the following revisions and sections of the SRP during the review.

- Revision 5 of SRP Section 6.2.2, "Containment Heat Removal Systems," dated March 2007 (ADAMS Accession No. ML070160661), provides the procedures concerning the review of containment heat removal under post-accident conditions to help ensure compliance with GDCs 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 GDCs 35, 36, and 37.
- Revision 5 of SRP Section 5.4.7, "Residual Heat Removal (RHR) System," dated May 2010 (ADAMS Accession No. ML100680577), provides the procedures concerning

the review of RHR system as it is used to cool the reactor coolant system (RCS) during and following shutdown to help ensure compliance with GDC 34.

3.0 TECHNICAL EVALUATION

3.1 Proposed TS Changes

The proposed changes adopted the TS format and content, with the exception of changes due to plant-specific nomenclature, contained in the changes made by TSTF-523-A, Revision 2 to NUREG-1431, "Standard Technical Specifications Westinghouse Plants."

The NRC staff compared the proposed changes to the existing SRs, as well as the regulatory requirements of 10 CFR 50.36(c). The licensee proposed the following TS changes:

1. Add SR 3.4.6.4, which states, "Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water," with a note that states "Not required to be performed until 12 hours after entering MODE 4," and a frequency of "In accordance with the Surveillance Frequency Control Program."
2. Add SR 3.4.7.4, which states, "Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water," with a frequency of "In accordance with the Surveillance Frequency Control Program."
3. Add SR 3.4.8.3, which states "Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water," with a frequency of "In accordance with the Surveillance Frequency Control Program."
4. Add a note to SR 3.5.2.2, 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 ECCS piping is full of water" to "Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water."
6. Add a note to SR 3.6.6.1, which states, "Not required to be met for system vent flow paths opened under administrative control."
7. Add SR 3.6.6.9, which states, "Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water," with a frequency of "In accordance with the Surveillance Frequency Control Program."
8. Add SR 3.9.5.2, which states, "Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water," with a frequency of "In accordance with the Surveillance Frequency Control Program."
9. Add SR 3.9.6.3, which states, "Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water," with a frequency of "In accordance with the Surveillance Frequency Control Program."

Editorial changes to the TS table of contents were proposed to reflect page number changes due to the addition of new SRs.

3.2 NRC Staff Evaluation

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 Surveillance Requirements (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 4 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 concludes 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 LCO will be met. Based on the above, the NRC staff concludes that the proposed amendment is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Missouri State official, Mr. R. Stout, was notified on September 15, 2015, of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the 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 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 published in *Federal Register* on June 9, 2015 (80 FR 32630). 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: M. Hamm, NRR/DSS/STSB

Date: October 28, 2015

October 28, 2015

Mr. Fadi Diya
Senior Vice President and
Chief Nuclear Officer
Union Electric Company
P.O. Box 620
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT, UNIT 1 - ISSUANCE OF AMENDMENT RE:
REVISION OF TECHNICAL SPECIFICATIONS TO ADOPT TSTF-523-A,
REVISION 2, "GENERIC LETTER 2008-01, MANAGING GAS
ACCUMULATION" (CAC NO. MF5856)

Dear Mr. Diya:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 213 to Renewed Facility Operating License No. NPF-30 for the Callaway Plant, Unit 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated March 12, 2015.

The amendment revises the TS requirements to address NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," as described in Technical Specification Task Force (TSTF) Traveler TSTF-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation."

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

Sincerely,
/RA/

L. John Klos, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosures:

1. Amendment No. 213 to NPF-30
2. Safety Evaluation

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OFFICE	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/LA	NRR/DSS/STSB/BC
NAME	JKlos	JBurkhardt	RElliott
DATE	10/1/2015	9/16/15	10/6/2015
OFFICE	OGC - NLO	NRR/DORL/LPL4-1/BC	NRR/DORL/LPL4-1/PM
NAME	AGhosh	MMarkley	JKlos
DATE	10/14/15	10/28/15	10/28/15

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