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

August 31, 2015

Vice President, Operations
Entergy Operations, Inc.
Waterford Steam Electric Station, Unit 3
17265 River Road
Killona, LA 70057-3093

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - ISSUANCE OF AMENDMENT RE: CHANGE TO UPDATED FINAL SAFETY ANALYSIS REPORT CLARIFYING PRESSURIZER HEATERS FUNCTION FOR NATURAL CIRCULATION AT THE ONSET OF A LOSS OF OFFSITE POWER (TAC NO. MF3058)

Dear Sir or Madam:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 245 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3. This amendment consists of changes to the Updated Final Safety Analysis Report in response to your application dated November 11, 2013, as supplemented by letters dated October 23, 2014; and January 13, January 21, April 1, and May 27, 2015.

The amendment clarifies how the pressurizer heaters function is met for natural circulation at the onset of a loss of offsite power concurrent with the specific single point vulnerability. Specifically, the 4.16 kilovolt (kV) Supply Circuit Breakers 32A and 32B that provide power to the pressurizer heaters share a specific common circuit breaker that affects their control power close circuitry. If this specific common circuit breaker is open at the onset of a loss of offsite power, the 4.16 kV Supply Circuit Breakers 32A and 32B would not close automatically, preventing the energizing of the pressurizer heaters from the control room.

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

Sincerely,

Michael D. Orenak, Project Manager
Plant Licensing IV-2 and Decommissioning
Transition Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures:
1. Amendment No. 245 to NPF-38
2. Safety Evaluation

cc w/enclosures: Distribution via Listserv

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

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 245
License No. NPF-38

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Entergy Operations, Inc. (EOI), dated November 11, 2013, as supplemented by letters dated October 23, 2014; and January 13, January 21, April 1, and May 27, 2015, 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, by Amendment No. 245, the license is amended to authorize changes to the Updated Final Safety Analysis Report (UFSAR), as set forth in the application dated November 11, 2013, as supplemented by letters dated October 23, 2014; and January 13, January 21, April 1, and May 27, 2015. The licensee shall update the UFSAR to incorporate the changes as described in the licensee's application and as stated in the NRC staff's safety evaluation attached to this amendment. The licensee shall submit the changes authorized by this amendment with the next update of the UFSAR.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Meena K. Khanna, Chief
Plant Licensing IV-2 and Decommissioning
Transition Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Date of Issuance: August 31, 2015

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 245 TO

FACILITY OPERATING LICENSE NO. NPF-38

ENTERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated November 11, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13316C052), as supplemented by letters dated October 23, 2014; and January 13, January 21, April 1, and May 27, 2015 (ADAMS Accession Nos. ML14300A020, ML15013A439, ML15021A587, ML15091A513, and ML15147A070, respectively), Entergy Operations, Inc. (Entergy, or the licensee), requested changes to the Updated Final Safety Analysis Report (UFSAR) for Waterford Steam Electric Station, Unit 3 (WF3) to provide clarification that manual operator action outside of the control room is needed to energize the pressurizer heaters associated with natural circulation at the onset of a loss-of-offsite power (LOOP) in the event a specific common circuit breaker is open concurrently (i.e., a single point vulnerability).

During Integrated Emergency Diesel Generator/Engineering Safety Features Testing, it was identified that the Switchgears 32A and 32B Supply Circuit Breakers that provide power to the pressurizer heaters shared a specific common circuit breaker that affects their control power close circuitry. If this specific common circuit breaker was in the open position, the Switchgears 32A and 32B Supply Circuit Breakers would not close automatically at the onset of a LOOP. This inability to close Switchgears 32A and 32B Supply Circuit Breakers at the onset of a LOOP means that plant operators would be unable to energize pressurizer heaters from the control room. Manual operator action would be necessary outside of the control room to close the Switchgears 32A and 32B Supply Circuit Breakers.

NUREG-0737, "Clarification of TMI [Three Mile Island] Action Plan Requirements," dated November 1980 (ADAMS Accession No. ML051400209), specifies criteria for power reactors that the U.S. Nuclear Regulatory Commission (NRC) developed from the insights learned from the accident at TMI. NUREG-0737, Section II.E.3.1 specifies provisions regarding emergency power supplies for pressurizer heaters and controls. Among other criteria, the pressurizer heater power supply design is required to provide the capability to supply, from either the offsite power source or the emergency power source (when offsite power is not available), a predetermined number of pressurizer heaters and associated controls necessary to establish and maintain natural circulation at hot standby conditions.

WF3 received its operating license on March 16, 1985. Prior to the issuing of the license, the NRC staff reviewed all of the documentation provided by the original licensed owner, Louisiana Power and Light Company, demonstrating compliance with the requirements in NUREG-0737, Section II.E.3.1, for the emergency power supply for the pressurizer heaters. This information was incorporated into the licensee's original WF3 Final Safety Analysis Report (FSAR) and in the subsequent UFSARs in Section 1.9.26.

The WF3 UFSAR Sections 1.9.26, "Emergency Power Supply for Pressurizer Heaters (II.E.3.1)," and 5.4.10, "Pressurizer," currently do not identify this single point vulnerability, resulting in an inconsistency between the current plant design and information provided in the UFSAR demonstrating that the requirements of NUREG-0737, Section II.E.3.1 are met. To resolve this inconsistency, the licensee submitted the November 11, 2013, license amendment request (LAR), pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.90, "Application for amendment of license, construction permit, or early site permit," to update the UFSAR.

The supplements dated October 23, 2014; and January 13, January 21, April 1, and May 27, 2015, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on August 5, 2014 (79 FR 45474).

2.0 REGULATORY EVALUATION

2.1 System Description

The WF3 UFSAR, Section 5.4.10.2, "System Description," currently states, in part, that to maintain the reactor coolant natural circulation in the hot standby condition after a LOOP, a redundant group of pressurizer proportional heaters and three redundant groups of backup heaters (banks) can be manually supplied with emergency power from each of the emergency diesel generators (EDGs). Reenergizing the necessary heaters can be accomplished manually from the control room. Procedures ensure that the addition of these loads after a LOOP will not exceed the power rating of the EDG. The pressurizer heaters are powered from the 480 Volt (V) non-safety Switchgear Buses 3A32 and 3B32 (Switchgear 32A and 32B, respectively). The 480 V Switchgears 32A and 32B are fed from 4.16 kilovolt (kV) to 480 V transformers, which in turn are fed from upstream 4.16 kV Class 1E switchgears through the safety-grade 4.16 kV Breakers 3A-8 and 3B-9 (powered by either the offsite power or by the EDG). In this safety evaluation (SE), these 4.16 kV breakers (3A-8 and 3B-9) are referred as 4.16 kV Supply Circuit Breakers 32A and 32B.

The 4.16 kV Supply Circuit Breakers 32A and 32B share a specific common circuit breaker, number CVCEBKR014AB-13, that supplies power to their control power close circuitry. If the specific common circuit breaker is open at the time a LOOP occurs, then the 4.16 kV Supply Circuit Breakers 32A and 32B will not close automatically at the onset of a LOOP, resulting in plant operators being unable to energize pressurizer heaters from the control room. Plant operators would need to manually close the 4.16 kV Supply Circuit Breakers 32A and 32B locally and perform the control room manual actions to energize the pressurizer heaters.

The local manual operation to close the 4.16 kV Supply Circuit Breakers 32A and 32B is performed in the respective Switchgear Rooms A and B by opening the door to the 4.16 kV Supply Circuit Breakers 32A and 32B and depressing the close pushbutton. Once each switchgear bus is reenergized, the pressurizer heaters powered from that bus can be reenergized from the control room.

The licensee stated that the operator action to energize the pressurizer heaters is not a time critical operator action because the natural circulation cooldown analysis does not credit the operation of any pressurizer heaters.

2.2 Proposed Changes

To address the single point vulnerability discussed above, the licensee proposed changes to the WF3 UFSAR Sections 1.9.26; 5.4.10.2; 9.3.6.3.3, "Performance Evaluation"; and added Section 9.3.6.3.3.1, "Natural Circulation Cooldown Analysis."

2.2.1 WF3 UFSAR Section 1.9.26

In the LAR, the licensee proposed to revise the following paragraph of WF3's UFSAR, Section 1.9.26, relating the emergency power supply for pressurizer heaters. The changes are is shown in **bold** below:

> Consistent with satisfying the requirements of General Design Criteria 10, 14, 15, 17, and 20 of Appendix A to 1**0**CFR50 for the event of loss of offsite power, the Waterford 3 pressurizer heater power supply design provides the capability to supply, from either the offsite power source or the emergency power source (when offsite power is not available), a redundant group of pressurizer proportional heaters and associated controls necessary to establish and maintain natural circulation at hot standby conditions. Each group of heaters has access to only one Class IE division power supply. The Class IE interfaces for main power and control power are protected by safety-grade circuit breakers. **Part of the closing circuitry to these safety-grade circuit breakers share a specific common circuit breaker, CVCEBKR014AB-13. If CVCEBKR014AB-13 is Open at the onset of a loss of offsite power, local manual operator action in the respective train switchgear room is necessary to reenergize the Pressurizer Heaters of that train.** Being non-Class IE loads, the pressurizer heaters are automatically shed from the emergency power source upon the occurrence of a safety injection actuation signal. See FSAR Subsection 5.4.10.2 for a more detailed discussion. FSAR Section 8.3 has been revised to reflect this design. Figure 8.3-33 depicts the schematic arrangement of the emergency power supply for the pressurizer heaters.

2.2.2 WF3 UFSAR, Section 5.4.10.2

In the LAR, the licensee proposed inserts, shown in **bold** below, to the following paragraphs of WF3's UFSAR, Section 5.4.10.2, relating to the pressurizer system description.

> In order to determine the pressurizer heater capacity required to maintain natural circulation in the hot standby condition after a loss of offsite power, it was conservatively assumed that the ambient heat loss rate through the pressurizer was 400,000 BTU/hr [british thermal units per hour]. The measured heat loss from startup testing was only 356,000 BTU/hr. With an assumed 400,000 BTU/hr heat loss and a safety valve leakage of up to 0.5 gpm [gallons per minute], single phase natural circulation can be maintained at hot standby conditions with a 50 °F [degrees Fahrenheit] subcooled margin indefinitely by energizing 150kW [kilowatt] of heater capacity thirty minutes after the loss of offsite power. Loss of subcooling, however, does not imply loss of natural circulation.
>
> **The natural circulation cooldown analysis (refer to FSAR Section 9.3.6.3.3.1), performed to comply with Branch Technical Position [BTP] 5-4, Design Requirements of the Residual Heat Removal System, does not credit the operation of any pressurizer heaters. Therefore, the operator action to energize the Pressurizer Heaters is not a time critical operator action.**
>
> A redundant group of pressurizer proportional heaters and three redundant groups of backup heaters have been made available to be placed manually on the emergency diesel generator after a loss of offsite power. Each bank of heaters has access to only one Class 1E division power supply.
>
> **Part of the closing circuitry to the breakers that provide power to the 480V non-safety switchgear buses 3A32 and 3B32 (that power the Pressurizer Heaters) share a specific common circuit breaker, CVCEBKR014AB-13. CVCEBKR014AB-13 powers the interlock 52z relay, SSDEREL2348-D (SSDEREL2398-D). The interlock 52z relay checks for completion of load stripping on the respective 480V non-safety switchgear buses 3A32(3B32) at the onset of a Loss of Offsite Power. If the load stripping is complete, the interlock 52z relay closes a contact in the closing circuitry to the breakers that provide power to the 480V non-safety switchgear buses 3A32 and 3B32 to allow the breakers to close automatically when the sequencer load block contact in the closing circuitry is closed**.
>
> **Alternatively, if the specific common circuit breaker, CVCEBKR014AB-13, is Open, then the breakers that provide power to the 480V non-safety switchgear buses 3A32 and 3B32 will not close automatically at the onset of a Loss of Offsite Power. To close the breakers that power each Pressurizer Heater electrical switchgear 3A32(3B32), local manual operator action in the respective train Switchgear room is necessary.**
>
> Reenergization of the necessary heaters from the emergency onsite power can be accomplished manually from the control room. **At the onset of a Loss of**

Offsite Power concurrent with the specific common circuit breaker, CVCEBKR014AB-13, being Open, the reenergization of the 480V non-safety switchgear buses 3A32 and 3B32 (that power the Pressurizer Heaters) will require action to be performed outside of the Control Room. To close the breakers that power the 480V non-safety switchgear buses 3A32 and 3B32, local manual operator action in the respective train Switchgear room is necessary. Once each 32 switchgear bus is reenergized, the necessary Pressurizer Heaters powered from that bus can be reenergized from the Control Room.

The natural circulation cooldown analysis [refer to FSAR Section 9.3.6.3.3.1], performed to comply with Branch Technical Position 5-4, Design Requirements of the Residual Heat Removal System, does not credit the operation of any pressurizer heaters. Therefore, the operator action to close the breakers that power each Pressurizer Heater electrical switchgear 3A32(3B32), located outside of the control room, is not a time critical operator action.

2.2.3 Sections 9.3.6.3.3 and 9.3.6.3.3.1

In Attachment 3 of the supplement dated April 1, 2015, the licensee proposed deletions in the UFSAR Section 9.3.6.3.3 shown in ~~strikeout~~ and the insert of UFSAR Section 9.3.6.3.3.1 as indicated in **bold** below.

~~A cooldown analysis was done to determine how much time would be required to bring the plant from power operation to shutdown cooling conditions. The analysis was done to meet the requirements of BTP RSB 5-1. Only safety grade systems were used. Offsite power was assumed to be lost and the most limiting single failure, one atmospheric dump valve fails to open, was assumed. Thus the cooldown was accomplished using only one steam generator since no credit for the cross tie piping was taken. As shown in Figures 9.3-8a and 9.3-8b, shutdown cooling conditions were reached in less than ten hours, when both hot leg temperatures are reduced to 400°F. This temperature is the design temperature of SDCS [shutdown cooling system] components. A ten hour minimum backup supply of motive gas for the atmospheric dump valve actuators (reference subsection 10.2.1) is provided by Safety Class 3, Seismic Category I accumulators to assure the valves remain operable from the control room until shutdown cooling entry conditions are satisfied. The maximum operating temperature of the SDCS is 350°F, therefore it is desirable to achieve ≤ 350°F prior to initiating SDC [shutdown cooling]. Procedures are established for operating manual handwheel overrides or lining up backup air supplies for continued safety function after 10 hours.~~

~~Reference 5 documents the results of a natural circulation cooldown test performed at San Onofre Nuclear Generating Station that is applicable to Waterford 3. This report shows that adequate boron mixing can be achieved with natural circulation and no letdown, that Waterford 3 has sufficient emergency~~

~~feedwater capacity, and that the cooldown can be achieved without the formation of a void in the upper head. Thus the requirements of BTP RSB 5-1 are met.~~

9.3.6.3.3.1 Natural Circulation Cooldown Analysis

The natural circulation cooldown analyses are accomplished in two phases, the first phase is the initial cooldown to shutdown cooling initiation temperature and pressure, then shutdown cooling system (FSAR Section 9.3.6) operation phase to cool to the reactor coolant system temperature of 200°F. For a loss of offsite power and associated natural circulation cooldown, the initial phase is accomplished through the emergency feedwater system (FSAR Section 10.4.9) and the atmospheric dump valves (FSAR Section 10.3). This equipment is used to reduce the reactor coolant system temperature and pressure to values that permit operation of the shutdown cooling system. This analysis utilizes the CENTS code (refer to FSAR Section 15.0.3.1.6 for the code description) to model the nuclear steam supply system transient. The shutdown cooling system removes core decay heat and provides long-term core cooling following the initial phase of reactor cooldown. These analyses calculate the time to cooldown the plant to cold shutdown conditions and the emergency feedwater inventory required.

The natural circulation cooldown analyses are used to demonstrate compliance with Branch Technical Position (BTP) 5-4. BTP 5-4 delineates the design requirements of the residual heat removal system that was formerly BTP Reactor System Branch (RSB) 5-1. These analyses demonstrate that the following BTP 5-4 paragraph B functional requirements are met.

1. **The design shall be such that the reactor can be taken from normal operating conditions to cold shutdown using only safety-grade systems satisfying General Design Criteria 1 through 5.**
2. **The systems shall have suitable redundancy in components and features, and suitable interconnections, leak detection, and isolation capabilities to assure that for onsite electrical power system operation (assuming offsite power is not available) and for offsite electrical power system operation (assuming onsite power is not available) the system function can be accomplished assuming a single failure.**
3. **The systems shall be capable of being operated from the control room with either only onsite or only offsite power available. In demonstrating that the systems can perform their function assuming a single failure, limited operator action outside the control room is considered acceptable if suitably justified.**
4. **The systems shall be capable of bringing the reactor to a cold shutdown condition, with only onsite or offsite power**

available, within a reasonable period of time following shutdown, assuming the most limiting single failure.

The limiting single failure with respect to emergency feedwater inventory usage is the failure of an atmospheric dump valve. For this single failure, the atmospheric dump valve is permanently unavailable, forcing a cooldown on a single steam generator. Once on the shutdown cooling system, the cooldown proceeds rapidly, as two trains are available. The analysis demonstrates that sufficient safety related emergency feedwater inventory is available to achieve cold shutdown conditions. Figures 9.3-8a and 9.3-8b show the cooldown profile for the natural circulation cooldown with a failed atmospheric dump valve. The atmospheric dump valve actuators (FSAR Section 10.3.1) backup supply of motive gas is provided by Safety Class 3, Seismic Category I accumulators and provides a ten hour minimum supply. For this scenario, shutdown cooling entry conditions exceed 10 hours, thus procedural actions are credited for manually operating the remaining atmospheric dump valve handwheel or lining up backup air supplies for continued operation.

The limiting single failure with respect to the longest cooldown time is the loss of a DC [direct current] bus. The loss of a DC bus causes that train emergency diesel generator and atmospheric dump valve control logic to fail. In this scenario, only one train of safety related equipment is available, and in particular only one shutdown cooling system train is available for cooldown from 350°F to 200°F. The transient credits local manual control of the atmospheric dump valve within the four hour hold period prior to cooldown initiation. Thus, the Waterford 3 plant is capable of being cooled to a cold shutdown conditions with only offsite or onsite power available within a reasonable period of time of 40 hours.

CEN-259 (Reference 5) documents the results of a natural circulation cooldown test performed at San Onofre Nuclear Generating Station that is applicable to Waterford 3. This report shows that adequate boron mixing can be achieved with natural circulation and no letdown and that the cooldown can be achieved without the formation of a void in the upper head. This test was reviewed and approved by the NRC as applicable to Waterford 3 (Reference 6). Thus, the requirements of BTP RSB 5-4 are met.

The natural circulation cooldown analysis does not credit the operation of the pressurizer heaters. Therefore, operator action to energize the pressurizer heaters is not a time critical operator action.

2.3 Regulatory Requirements and Guidance

The regulation, 10 CFR 55.4, "Definitions," defines the "Systems approach to training."

The regulation, 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," requires that when a licensee desires to amend the license or permit, application for an amendment must be filed with the NRC by fully describing the desired changes and following the form in the original license application.

The regulations, 10 CFR 50.120, "Training and qualification of nuclear power plant personnel," required that the licensee maintain an adequate training program for plant personnel position categories.

"Appendix A to 10 CFR Part 50 - General Design Criteria for Nuclear Power Plants," establish the principal design criteria for a 10 CFR Part 50 licensed facility. General Design Criterion (GDC) 19 and GDC 34 are applicable to this LAR.

GDC 19, "Control room," states, in part:

> A control room shall be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents.

Shutting down for refueling and maintenance is a normal event for a reactor and the residual heat removal (RHR) system is one of several systems involved in the normal shutdown of all reactors; therefore, the RHR system must be operable from the control room.

GDC 34, "Residual heat removal," states:

> A system to remove residual heat shall be provided. The system safety function shall be to transfer fission product decay heat and other residual heat from the reactor core at a rate such that specified acceptable fuel design limits and the design conditions of the reactor coolant pressure boundary are not exceeded.
>
> Suitable redundancy in components and features, and suitable interconnections, leak detection, and isolation capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure.

NUREG-0800, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition" (SRP), provides guidance to NRC staff in performing safety reviews of construction permit or operating license applications (including requests for amendments) under 10 CFR Part 50. The specific sections used in this review include:

- SRP Chapter 5, BTP 5-4, "Design Requirements of the Residual Heat Removal System," Revision 4, dated March 2007 (ADAMS Accession No. ML070850123), describes the functional criteria of system(s) that can be used to take the reactor from full power operations to cold shutdown, as follows:

    A. The design shall be such that the reactor can be taken from normal operating conditions to cold shutdown using only safety-grade systems. These systems shall satisfy GDC 1 through 5.

    B. The system(s) shall have suitable redundancy in components and features, and suitable interconnections, leak detection, and isolation capabilities to ensure that for onsite electrical power system operation (assuming offsite power is not available) and offsite electrical power system operation (assuming onsite power is not available) the system function can be accomplished assuming a single failure.

    C. The system(s) shall be capable of being operated from the control room (including instrumentation for monitoring and control functions) with either only onsite or offsite power available. In demonstrating that the system can perform its function assuming a single failure, limited operator action outside of the control room would be considered acceptable if suitably justified.

    D. The system(s) shall be capable of bringing the reactor to a cold shutdown condition, with only offsite or onsite power available, within a reasonable period of time following shutdown, assuming the most limiting single failure.

- SRP Chapter 13, Section 13.2.1, "Reactor Operator Requalification Program; Reactor Operator Training," Revision 3, dated March 2007 (ADAMS Accession No. ML070100636), ensures that the proposed licensed operator training program description contains an adequate format, attributes, and level of detail that the training program shall be able to provide qualified personnel to operate and to maintain the facility in a safe and efficient manner, as well as to keep the facility in compliance with its license, technical specifications, and applicable regulations.

- SRP Chapter 13, Section 13.5.2.1, "Operating and Emergency Operating Procedures," Revision 2, dated March 2007 (ADAMS Accession No. ML070100635), details the NRC staff's review of the applicant's plan for development and implementation of operating procedures as described in the applicant's safety analysis report.

- SRP Chapter 18, "Human Factors Engineering [HFE]," Revision 2, dated March 2007 (ADAMS Accession No ML070670253), verifies that acceptable HFE practices and guidelines are incorporated into the plant's design.

NUREG-0737 describes the Commission approved items to be implemented from NUREG-0660, "NRC Action Plan Developed as a Result of the TMI-2 Accident," Volume 1, published May 1980 (ADAMS Accession No. ML072470526). The regulatory requirements pertaining to Emergency Power Supply for Pressurizer Heaters for Pressurized Water Reactors, described in NUREG-0737,Section II.E.3.1, are as follows:

Position

Consistent with satisfying the requirements of General Design Criteria 10 ["Reactor design"], 14 ["Reactor coolant pressure boundary"], 15 [Reactor coolant system design"], 17 ["Electric power systems"], and 20 ["Protection systems functions"] of Appendix A to 10 CFR Part 50 for the event of loss of offsite power, the following positions shall be implemented:

(1) The pressurizer heater power supply design shall provide the capability to supply, from either the offsite power source or the emergency power source (when offsite power is not available), a predetermined number of pressurizer heaters and associated controls necessary to establish and maintain natural circulation at hot standby conditions. The required heaters and their controls shall be connected to the emergency buses in a manner that will provide redundant power supply capability.

(2) Procedures and training shall be established to make the operator aware of when and how the required pressurizer heaters shall be connected to the emergency buses. If required, the procedures shall identify under what conditions selected emergency loads can be shed from the emergency power source to provide sufficient capacity for the connection of the pressurizer heaters.

(3) The time required to accomplish the connection of the preselected pressurizer heater to the emergency buses shall be consistent with the timely initiation and maintenance of natural circulation conditions.

(4) Pressurizer heater motive and control power interfaces with the emergency buses shall be accomplished through devices that have been qualified in accordance with safety-grade requirements.

NUREG-0787, Supplement No. 5, "Safety Evaluation Report Related to the Operation of Waterford Steam Electric Station, Unit No. 3," dated June 1983, reviewed the WF3 capability to achieve cold showdown by following BTP 5-1. The current BTP 5-4 contains the same requirements at BTP 5-1.

NUREG-1764, "Guidance for the Review of Changes to Human Actions," Revision 1, dated September 2007 (ADAMS Accession No. ML072640413), provides guidance for reviews to changes in human (i.e., operator) actions, such as those that are credited in nuclear power plant safety analyses.

NUREG-0700, "Human-System Interface Design Review Guidelines" Revision 2, dated May 2002 (ADAMS Accession No. ML021700373), provides the guidelines to evaluating the interface between plant personnel and plant's systems and components are evaluated for conformance with HFE guidelines.

NUREG-0711, "Human Factors Engineering Program Review Model," Revision 3, dated November 2012 (ADAMS Accession No. ML12324A013), verifies that the applicant's human performance engineering program incorporates HFE practices and guidelines accepted by the staff as described within the twelve elements of an HFE program.

Generic Letter (GL) 82-33, "Supplement 1 to NUREG-0737 - Requirements for Emergency Response Capability," Revision 2, dated December 17, 1982 (ADAMS Accession No. ML031080548), provides additional clarification regarding safety parameter display systems, detailed control room design reviews, Regulatory Guide 1.97, "Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants."

NRC Information Notice (IN) 97-78, "Crediting Operator Actions in Place of Automatic Actions and Modifications of Operator Actions, Including Response Times," dated October 23, 1997 (ADAMS Accession No. ML031050065), discussed inappropriately credit operator actions in place of automated system or component actuations.

3.0 TECHNICAL EVALUATION

The NRC staff used the regulatory requirements and guidance listed in Section 2.0 of this SE to review the proposed changes and additions to UFSAR Sections 1.9.26, 5.4.10.2, 9.3.6.3.3, and 9.3.6.3.3.1 to ensure they accurately describe the existing plant design and that the design meets the criteria in NUREG-0737, Section II.E.3.1.

3.1 Insert to UFSAR Section 1.9.26

The proposed insert to UFSAR Section 1.9.26 states:

> Part of the closing circuitry to these safety-grade circuit breakers share a specific common circuit breaker, CVCEBKR014AB-13. If CVCEBKR014AB-13 is Open at the onset of a loss of offsite power, local manual operator action in the respective train switchgear room is necessary to reenergize the Pressurizer Heaters of that train.

To assure that the proper procedures and training are established per Position (2) of NUREG-0737, Section II.E.3.1, the NRC staff reviewed the licensee's analysis of the changes to the UFSAR and identified human performance inputs for any modifications to the display and control interfaces, environment, procedures, and training that may be necessary for the control room operator to identify the open CVCEBKR014AB-13 breaker and perform the manual operator action to close the 4.16 kV Circuity Supply Breakers 32A and 32B. While the restoration of pressurizer heaters is not a new operator action, the potential need for action outside of the control room is new.

To assure the performance of the operator staff, the licensee is crediting the following items to support the operator in taking the correct actions in the proper sequence under the appropriate conditions. In accordance with the generic risk categories established in Appendix A to NUREG-1764, "Generic Human Actions that are Risk-Important," the following items are considered "of low risk-importance" because even though the use of pressurizer heaters and associated controls is preferred, they are not necessary to establish and maintain natural circulation at hot standby conditions (See Section 3.2.1 of this SE). Because of the low potential risk importance, the NRC staff performed a "Level Three" review under the guidance of NUREG-1764.

Procedure: OP-902-009, "Standard Appendices," Appendix 25, "Restore Pressurizer Heater Control," will be revised to clarify the actions needed to close the 4.16 kV Supply Circuit Breakers 32A and 32B in the event that they cannot be closed from the control room due to the position of their common breaker, CVCEBKR014AB-13, being open. The licensee enclosed a copy of the updated OP-902-009, Appendix 25, in the January 21, 2015, supplement and stated that the Emergency Operating Procedures will incorporate it upon the NRC approval of the LAR.

The following wording has been added to operations annunciator response procedure OP-500-010, "Annunciator Response – Control Room Cabinet L," so that if Annunciator Alarm L0804 (H-4) is received, the operators are aware of the potential impact to the Pressurizer Heaters.

> The loss of power to CVC-EBKR-014AB-13 does not de-energize Switchgear 32A and 32B from the emergency power buses if they are already connected. However, Switchgear 32A Supply, SSD-EBKR-3A-8, and Switchgear 32B Supply, SSD-EBKR-3B-9, will not automatically close to load Switchgear 32A and 32B onto the Emergency Diesel Generators if they were initially open, such as during a Loss of the 3A or 3B Bus or during Loss of Offsite Power event. Also these breakers will not be able to be closed remotely (from the Control Room) to re-energize Pressurizer Heaters. If this condition affects Pressurizer Heater availability, then refer to Technical Specification 3.4.3.1 and Technical Requirements Manual 3.4.3.1.

The NRC staff reviewed the changes against the criteria in NUREG-0700, Revision 2, and NUREG-0711, Revision 3, and finds that the changes to OP-902-009, Appendix 25 and OP-500-010 provide guidance to the operator for use during a loss of the 4.16 kV Circuit Supply Breakers 32A and 32B during a LOOP. The NRC staff does not approve the text of plant procedures, which is the responsibility of each licensee, but rather reviews the procedure to assure that the licensee has provided appropriate procedure guidance to operators and appropriate cues for when the procedural guidance should be used. The NRC staff concludes that the guidance provisions in OP-902-009, Appendix 25 and OP-500-010 are consistent with the criteria in NUREG-0700, Revision 2, and NUREG-0711, Revision 3, and, therefore, are acceptable.

Alarms: Annunciator Alarm L0804 (H-4), "Isol PNL CHNL NS Power Lost," would alarm in the Control Room to alert control room operators that CVCEBKRO14AB-13 is Open. The NRC staff finds that Annunciator Alarm L0804 (H-4), "Isol PNL CHNL NS Power Lost," is consistent with

the criteria in NUREG-0700, Revision 2 and provides an acceptable cue to alert operators that entry into OP-500-010 is required.

Displays and controls: As a result of a loss of power to Switchgear 32A or 32B during a LOOP, the control switches for the pressurizer heaters will lose indication. Control room operators would attempt to close the 4.16 kV Supply Circuit Breakers 32A and 32B. If the control switch indication did not indicate closed (i.e., turn red) then they would be directed by OP-902-009, Appendix 25 to refer to the subject annunciator and to dispatch an operator to close the breakers locally. The action, pushing the labelled pushbutton, is simple and well-practiced by operators. The NRC staff finds that the displays and controls currently provided to support the required operator actions are consistent with the criteria of NUREG-0700, Revision 2, and, therefore, acceptable.

Staffing: Two auxiliary operators are required to perform the action directed by OP-902-009, Appendix 25, and OP-500-010, where one closes the breaker and the other provides safety/first aid. Under the described conditions, there will always be two auxiliary operators available, even while maintaining the Technical Specification required minimum staffing. The NRC staff finds this practice consistent with the criteria in NUREG-0711, Revision 3, and, therefore, acceptable.

Feedback that the action is working: To determine if the action is working, control switch lights for individual pressurizer heater banks in the control room will indicate when power has been restored. They will indicate red when the heater banks are successfully turned on by the operator. Additionally, using Proportional Heater Bank #1 Ammeter (RC EM0100-3A) and Proportional Heater Bank #2 Ammeter (RC EM0100-3B), operators will be able to determine when the proportional heaters are powered on, providing another means of verification in addition to control switch indication. Overall, feedback that the strategy is working will be indicated by Reactor Coolant System (RCS) pressure and sub-cooled margin. The NRC staff finds the feedback mechanisms consistent with the criteria in NUREG-0700, Revision 2, and, therefore, acceptable.

Time available versus time required: Although manually closing the 4.16 kV Supply Circuit Breakers 32A and 32B is not a time critical action, the licensee performed time validations that showed a time of less than 10 minutes for the operator to close the 4.16 kV Supply Circuit Breakers 32A and 32B. These times included travel time from remote areas of the plant. The NRC staff finds this time validation consistent with NRC IN 97-78 and NUREG-0711, Revision 3, but unnecessary, because the operator action to energize the pressurizer heaters is not a time critical operator action (See Section 3.3 of this SE).

Training: Initial training on the single point vulnerability and required actions to locally operate the 4.16 kV Supply Circuit Breakers 32A and 32B was provided to Operations during Cycle 5 2013 (Lesson Plan WLP-LOR-135EDGGTS00). Future training on this vulnerability and required actions to locally operate the 4.16 kV Supply Circuit Breakers 32A and 32B will be driven by a training analysis per EN-TQ-201, "Systematic Approach to Training Process" (or SAT process). Currently, training on the local closure of a breaker similar to the 4.16 kV Supply Circuity Breakers 32A and 32B is provided in initial training to plant operators and on a 2-year periodicity. Since this training is based on the SAT process, the NRC staff finds that this training is consistent with 10 CFR 55.4 and 10 CFR 50.120 and, therefore, acceptable.

Environmental conditions: No adverse conditions are expected during this scenario. The operator is expected to experience initial temperatures of about 80 degrees F for the required task time of ten minutes or less, versus the plant's allowed stay time of 150 minutes. No radiation, humidity, darkness, or other adverse environmental conditions are expected. The NRC finds the task environment to be consistent with NUREG-0700, Revision 2, and in accordance with the validation process recommended in NUREG-0711, Revision 3 for the required task time of ten minutes or less, and, therefore, acceptable.

Based on the review of the above information, the NRC staff verified that the appropriate controls, displays, and alarms exist to cue the actions by the operators; the appropriate revisions will be applied to procedures; and that trained non-licensed auxiliary operators will be available to perform the required actions in a benign environment. The NRC staff concludes the proposed changes to UFSAR Section 1.9.26 are acceptable and that the licensee has the proper established procedures and training per Position (2) of NUREG-0737, Section II.E.3.1 to assure that the control room operator identifies the open CVCEBKR014AB-13 breaker and performs the manual operator action to close the 4.16 kV Supply Circuit Breakers 32A and 32B.

3.2 Inserts to the UFSAR, Section 5.4.10.2

3.2.1 Insert related to BTP 5-4

The first insert to the UFSAR, Section 5.4.10.2, labeled by the licensee as "Insert 2A", states:

> The natural circulation cooldown analysis, performed to comply with Branch Technical Position 5-4, Design Requirements of the Residual Heat Removal System, does not credit the operation of any pressurizer heaters. Therefore, the operator action to energize the Pressurizer Heaters is not a time critical operator action.

The licensee states that the operator action to energize the pressurizer heaters is not a time critical operation. Position (3) of NUREG-0737, Section II.E.3.1, states that the time to connect the pressurizer heaters to the emergency buses shall be consistent with the timely initiation and maintenance of natural circulation conditions. If the pressurizer heaters are not needed to establish and maintain natural circulation conditions, then the time needed to connect the pressurizer heaters to the emergency buses is irrelevant and the licensee meets the intent of Position (3) of NUREG-0737, Section II.E.3.1.

In the original November 11, 2013, request, the licensee did not provide a reference citation for the NRC approval of the "natural circulation cooldown analysis." The NRC staff requested additional information to verify that the natural circulation cooldown analysis cited in the proposed UFSAR changes was accurate to current plant design and was supported by the current licensing bases. The January 13, 2015, supplement referenced the NRC staff evaluation for the WF3 extended power uprate (EPU) from Amendment No. 199 (ADAMS Accession No. ML051030068), where the following statement was made:

> The RCS operating pressure and the TS minimum RCS flow rate will remain the same for EPU. The loop coolant temperature associated with the EPU remains within the bounds of the original design temperature for the RCS and the

> pressurizer. Sufficient core cooling under power uprate conditions is verified by the relevant plant transient and safety analyses, evaluated in Section 2.85.... The licensee's evaluation of the natural circulation cooldown capacity of the RCS for EPU conditions confirms that such a cooldown can be accomplished within the criteria established by Reactor Systems Branch (RSB) BTP 5-1.

Additionally, the January 13, 2015, supplement stated that the current WF3 natural circulation cooldown analysis was documented in a Design Analysis Report (DAR) as part of a replacement steam generator (SG) project. The current DAR was not cited or submitted in any previous submittal to the NRC, and therefore, was not available to the NRC staff for consideration. To determine if the current DAR followed BTP 5-4, the staff conducted an audit of the current and previous versions of the DAR and supporting documentation at the offices of Westinghouse Electric Company located in Rockville, MD on February 11-12, 2015. The audit report, dated March 18, 2015 (ADAMS Accession No. ML15071A337), concluded, in part, that the current version of the natural circulation cooldown analysis follows BTP 5-4 and is acceptable to be referenced in the original LAR and supplements. See Section 3.3 of this SE for the review of the DAR versions and supporting documentation.

Based on the conclusion of the February 11-12, 2015, audit, the NRC staff concludes that the current version of the natural circulation cooldown analysis is acceptable to be referenced in the UFSAR because it is consistent with current plant design, and meets BTP 5-4.

3.2.2 Insert related to the Design of the Power Supply to the Pressurizer Heaters

According to UFSAR Figure 8.3-33, all 480 V pressurizer heater circuit breakers are tripped by a loss of voltage signal (LOVS). The 4.16 kV Supply Circuit Breakers 32A and 32B to the 480 V non-safety pressurizer supply buses are also tripped by LOVS or safety injection actuation signal (SIAS). These breakers close automatically when the corresponding EDG voltage is available.

The closing of the 4.16 kV Supply Circuit Breakers 32A and 32B was not adequately described in UFSAR Figure 8.3-33. In the January 21, 2015, supplement, the licensee provided the following clarifications regarding the operation of the 4.16 kV Supply Circuit Breakers 32A and 32B under the following conditions:

Condition	4.16 kV Supply Circuit Breakers 32A and 32B Operation
LOOP only	Trips on Loss of Voltage signal and recloses automatically when EDG voltage is available.
SIAS only	Trips on SIAS signal and may be manually closed from Control Room 205 seconds after SIAS.
Concurrent LOOP and SIAS	Breaker trips are initiated by Loss of Voltage and/or SIAS. The 4.16 kV Supply Circuit Breaker 32B may be closed locally 205 seconds after SIAS using the manual Push Button and the keyed Selector Switch (SS/SWGR). During a control room fire event, fire induced damage to certain cables may prevent automatic sequencing of Switchgear 4.16 kV Supply Circuit Breaker 32B following a loss of offsite power event. In this event the keyed Selector Switch allows Operators to close the breaker without having to open the breaker cubicle door. Train B is the dedicated train during a Control Room fire event and therefore, the Selector Switch was installed for Switchgear 32B only. Since Train A is not dedicated for a control room fire the breaker for Switchgear 32A does not have a Selector Switch and may only be closed with the breaker cubicle door open.

Additionally, NUREG-0737, Section II.E.3.1, contains two criteria regarding the design of the power supply to the pressurizer heaters. The first, Position (1), states that (1) the pressurizer heaters power supply shall power the pressurizer heaters and controls necessary to establish and maintain natural circulation at hot standby conditions and (2) the heaters and their control shall be connected to the emergency buses in a manner that will provide redundant power supply capability. With the identification of the single point vulnerability, breaker CVCEBKR014AB-13, WF3 does not provide redundant power supply capability to the pressurizer heaters. However, the licensee has demonstrated through its current DAR that the pressurizer heaters are not necessary to establish and maintain natural circulation at hot standby conditions (see Section 3.3 of this SE). Therefore, the NRC staff concludes that, by not needing the pressurizer heaters to establish and maintain natural circulation, the licensee meets the intent of Position (1) of NUREG-0737, Section II.E.3.1.

NUREG-0737, Section II.E.3.1, Position (4), states that the heater motive and control power interfaces with the emergency buses shall be accomplished through devices that have been qualified in accordance with safety-grade requirements. The licensee states in the original November 11, 2013, submittal that the Class 1 E interfaces for main power and control power are protected by the safety-grade 4.16 kV Supply Circuit Breakers 32A and 32B. Since the 4.16 kV Supply Circuit Breakers 32A and 32B are safety grade, the NRC staff concludes that the licensee continues to meet Position (4) of NUREG-0737, Section II.E.3.1.

The additional information in the January 15, 2015, supplement provided the clarifications necessary for the NRC staff to determine that the revised description of the pressurizer heaters power supply is accurate to the current plant design. The NRC staff also finds that the licensee continues to meet Positions (1) and (4) of NUREG-0737, Section II.E.3.1. Therefore, the NRC staff concludes that the addition of the portion of Section 5.4.10.2 regarding the design of the power supply to the pressurizer heaters is acceptable.

3.3 UFSAR Sections 9.3.6.3.3 and 9.3.6.3.3.1

As stated in Section 3.2.1 of this SE, the current WF3 natural circulation cooldown analysis was not cited or submitted in any previous submittal to the NRC. Therefore, the analysis was unavailable for the NRC staff to determine if (1) the analysis reflects the current plant design and (2) the analysis follows BTP 5-4, which treats the pressurizer heaters as a non-safety grade system that are not needed to initiate and maintain natural circulation. If the pressurizer heaters are not necessary to initiate and maintain natural circulation, then the licensee meets the intent of Position (3) of NUREG-0737, Section II.E.3.1. Additionally, UFSAR Section 9.3.6.3.3 did not account for the current natural circulation cooldown analysis, resulting in the creation of UFSAR Section 9.3.6.3.3.1 to include the updated analysis and description.

During a LOOP, the EDG powers the pressurizer heaters and associated controls that can be used to establish and maintain natural circulation at hot standby conditions when the 4.16 kV Supply Circuit Breakers 32A and 32B are operating as designed. The period of time to be in natural circulation at hot standby is not specified in the UFSAR. BTP 5-4 states that the auxiliary feedwater supply is to have sufficient inventory to permit operation at hot shutdown for at least 4 hours, followed by cooldown to conditions permitting operation of the RHR system.

The DAR was developed by the analysis of record holder, Westinghouse Electric Company, to provide a summary of the analyses used to demonstrate compliance with BTP 5-4. During the February 11-12, 2015, audit, the NRC staff reviewed the two separate analyses that were performed as part of the BTP 5-4 evaluation. The first analysis performs a full scope computer simulation of the plant cooldown from hot standby conditions to SDCS entry conditions, using the functional criteria specified in BTP 5-4. The second analysis models the SDCS performance and evaluates the plant cooldown from SDCS entry conditions (350 °F) to 200 °F following a natural circulation cooldown. The second analysis does not involve the pressurizer heater function and is thus excluded from further discussion as part of this SE.

The DAR simulations were performed assuming the functional criteria stated in paragraph B of BTP 5-4. Paragraph B of BTP 5-4 states the following as to the systems used to take the reactor from normal operating conditions to shutdown cooling conditions:

1. The design shall be such that the reactor can be taken from normal operating conditions to cold shutdown using only safety-grade systems satisfying GDC 1 through 5.

2. The systems shall have suitable redundancy in components and features, and suitable interconnections, leak detection, and isolation capabilities to assure that for onsite electrical power system operation (assuming offsite power is not available) and for offsite electrical power system operation (assuming onsite power is not available) the system function can be accomplished assuming a single failure.

3. The systems shall be capable of being operated from the control room with either only onsite or only offsite power available. In demonstrating that the systems can

perform their functions assuming a single failure, limited operator action outside the control room is considered acceptable if suitably justified.

4. The systems shall be capable of bringing the reactor to a cold shutdown condition, with only onsite or offsite power available, within a reasonable period of time following shutdown, assuming the most limiting single failure.

The two scenarios considered in this analysis were (1) failure of one of the SG atmospheric dump valves (ADV) to open, and (2) failure of one EDG. The two scenarios correspond to two different single failures and are simulated in the analysis to assure that the most limiting single failure is identified in accordance with Item 4 above. The results are provided in terms of time (in hours) to reach shutdown cooling entry conditions following the reactor trip.

This analysis assumes the plant is operating normally at 100.5 percent when the initiating event, a LOOP, occurs. This 100.5 percent value assumes the use of high accuracy ultrasonic flow measurement instrumentation. Following the LOOP, the plant is maintained at hot standby conditions for 4 hours before cooldown begins and, except where specifically permitted by BTP 5-4, only safety grade systems and equipment are credited. Per BTP 5-4, the analysis assumes that the pressurizer heaters, which are non-safety grade, are not available following a LOOP and, therefore, not credited to support natural circulation cooldown.

With regard to the RHR system performance, the limiting single failure for the natural circulation analysis is dependent upon the desired results, consisting of (1) the time required for cold shutdown conditions and (2) the emergency feedwater inventory usage during cooldown. The licensee provided a discussion of the systems and components that could affect cooldown time or potentially be the limiting single failure affecting the RHR system. These include:

- Failure of an ADV
- Loss of a DC bus causing the train EDG and ADV control logic to fail
- Failure to have enough emergency feedwater inventories when only one SG is available
- Loss of EDGs causing a loss of the Class IE electrical systems (analyzed in the UFSAR)
- Emergency feedwater system reliability
- Charging system and auxiliary pressurizer spray systems ability to satisfy BTP 5-4
- Shutdown cooling system ability to cool the RCS given a single active failure
- Ultimate heat sink heat removal capability for all modes of operation, including accidents coincident with a single active failure

The natural circulation cooldown analysis was performed with: (1) an ADV failure, which the licensee identified as the most limiting single failure, and (2) an EDG failure. The analysis results documented in the DAR demonstrate that WF3 would maintain its ability to cool the RCS, maintain shutdown margin following shutdown, and provide decay heat removal consistent with BTP 5-4 without the use of the pressurizer heaters.

The NRC staff found that the inputs, assumptions, and results were similar when comparing the current and previous versions of the DAR. Additionally, the current version of the DAR also includes a discussion of boric acid delivery to address BTP 5-4's boration for the cold shutdown requirement. The NRC staff finds that the current version of the natural circulation cooldown

analysis complies with BTP 5-4, the operator action to energize the pressurizer heaters is not a time critical operator action, and that the licensee meets NUREG-0737, Section II.E.3.1, Position (3). Based on these findings, the NRC staff concludes that the proposed changes to UFSAR Sections 9.3.6.3.3 and 9.3.6.3.3.1 are acceptable.

3.4 Summary

The NRC staff has reviewed the licensee's proposed changes to the UFSAR Sections 1.9.26, 5.4.10.2, 9.3.6.3.3, and 9.3.6.3.3.1 clarifying pressurizer heaters function for natural circulation cooldown. The staff finds that the proposed changes are in accordance with NUREG-0737, Section II.E.3.1, and are consistent with the current design of the plant, therefore are acceptable to be implemented in the UFSAR.

4.0 REGULATORY COMMITMENTS

Entergy submitted two Regulatory Commitments regarding this LAR. The first states:

> Waterford 3 will establish appropriate controls sufficient to ensure 'flash suits' for Operations usage (for local manual operation of 4160 VAC breakers) are available in Reactor Auxiliary Building Safety Switchgear Room B at all times to meet Personal Protection Equipment requirements.

The NRC staff concludes that this commitment supports the industrial safety of the plant operators. Because the NRC staff did not rely on the availability of flash suits as a partial basis for its findings on this LAR, this commitment is not required for this license amendment.

Entergy submitted a second Regulatory Commitment in its April 1, 2015, supplement that states:

> The final safety analysis report will be updated to reflect W3F1-2015-0026 [April 1, 2015, supplement] changes.

The licensee stated that this is a one-time commitment and will be completed after the approval of the license amendment request. The NRC staff has incorporated this commitment into the amendment, which states the licensee is required to implement the amendment (i.e., make the UFSAR changes), within 90 days.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana State official was notified of the proposed issuance of the amendment on July 19, 2015. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The 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. 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 the *Federal Register* on August 5, 2014 (79 FR 45474). 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.

7.0 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.

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Date: August 31, 2015

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

Sincerely,

/RA/

Michael D. Orenak, Project Manager
Plant Licensing IV-2 and Decommissioning
Transition Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures:
1. Amendment No. 245 to NPF-38
2. Safety Evaluation

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ADAMS Accession No.: ML15139A483 *via memorandum

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