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10 CFR 50.90

W3F1-2019-0047

August 27, 2019

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Application for Technical Specification Change to
Control Room Air Conditioning System

Waterford Steam Electric Station, Unit 3
NRC Docket No. 50-382
Renewed Facility Operating License No. NPF-38

In accordance with the provisions of Section 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), Entergy Operations, Inc. (Entergy) is submitting a request for an amendment to the technical specifications (TS) for Waterford Steam Electric Station Unit 3 (Waterford 3).

The proposed amendment would modify TS surveillance requirement (SR) 4.7.6.1.d. The Enclosure to this letter provides a description and assessment of the proposed change to the Waterford 3 TS.

- Attachment 1 provides the existing TS pages marked up to show the proposed changes.
- Attachment 2 provides the clean pages for the TS.

Entergy requests approval of the proposed license amendment by September 1, 2020 with the amendment being implemented within 30 days to support Refueling Outage 23 (RF23).

In accordance with 10 CFR 50.91(a)(1), "Notice for Public Comment," the analysis concerning the issue of no significant hazards consideration using the standards in 10 CFR 50.92 is included in Attachment 1.

In accordance with 10 CFR 50.91(b)(1), "Notice for Public Comment; State Consultation," a copy of this application is being provided to the designated Louisiana Official.

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This letter contains no new commitments.

If you have any questions or require additional information, please contact Paul Wood, Regulatory Assurance Manager, at 504-464-3786.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August 27, 2019.

Respectfully,

A handwritten signature in blue ink, appearing to read "Ron Gaston", with a long horizontal flourish extending to the right.

Ron Gaston

RWG/ajh

Enclosure: Evaluation of the Proposed Change

Attachments to Enclosure:

1. Technical Specification Page Markups
2. Technical Specification Clean Pages

cc: NRC Region IV Regional Administrator
NRC Senior Resident Inspector
Louisiana Department of Environmental Quality
NRC Project Manager

Enclosure

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Evaluation of the Proposed Change

EVALUATION OF THE PROPOSED CHANGE

1.0 SUMMARY DESCRIPTION

Entergy is requesting approval for a proposed amendment to the Technical Specifications (TS), Appendix A of Renewed Facility Operating License No. NPF-38 for Waterford Steam Electric Station, Unit 3 (Waterford 3).

The proposed amendment would modify TS surveillance requirements (SR) 4.7.6.1.d.2 and 4.7.6.1.d.4 to add an exception for automatic dampers and valves that are locked, sealed, or otherwise secured in the actuated position in Modes 5, 6, or defueled, in order to consider the SR met. This request is being made to facilitate fuel movement with one train of the Control Room Emergency Air Filtration System (CREAFS) with its associated outside air intake valves inoperable due to planned electrical bus or static uninterruptible power supply (SUPS) outage. The continuation of fuel movement with one train of CREAFS inoperable was reviewed and approved by the NRC in TS Amendment 218 and described in the associated safety evaluation (SE) (Reference 5.1). With a planned bus outage on a given train, the CREAFS system would be manually placed in the "ISOLATE" mode, which closes the outside air intake and exhaust valves that are part of the Control Room Envelope (CRE) boundary, and then power would be removed. The current SRs, as written, would not be met for the valves on the train which was deenergized since the automatic outside air intake and exhaust valves would already be deenergized in their actuated positions. Similarly, a planned SUPS outage that removes the capability of generating a test signal would also result in an unmet SR. The requested SR exception is consistent with the Amendment 218 SE discussion concerning fuel movement which states, "When one train is inoperable, placing the operable train in service ensures that the safety function can be carried out if an accident occurs."

Securing the automatic valves or dampers in the actuated position may affect the operability of the system depending on the mode of operation. The CREAFS meets its safety function requirements during Modes 5, 6, and defueled when the automatic valves or dampers are in the closed position. During fuel movement in Modes 5, 6, and defueled, Engineering Calculation ECS04-011, "Fuel Handling Accident (FHA) Alternative Source Term (AST) Radiological Dose Consequences for 3716 MWt Extended Power Uprate (EPU)," (Reference 5.2) demonstrates that the isolate mode for air makeup meets system operability requirements for the duration of the event. Therefore, aligning the system to comply with Action "d" during a maintenance bus outage in Modes 5, 6, and defueled is acceptable, maintains system operability, and aligns with the NRC's approval of TS Amendment 218.

2.0 DETAILED DESCRIPTION

2.1 System Description

The CREAFS provides a protected environment from which operators can control the unit, during airborne challenges from radioactivity, hazardous chemicals, and fire byproducts, such as fire suppression agents and smoke, during normal and accident conditions.

The CREAFS is designed to maintain a habitable environment in the CRE for 30 days of continuous occupancy after a design-basis accident (DBA) without exceeding a 5 Roentgen

equivalent man (Rem) whole body dose or its equivalent to any part of the body, 5 Rem total effective dose equivalent (TEDE).

The CREAFS consists of two redundant trains, each capable of maintaining the habitability of the CRE. The CREAFS is considered operable when the individual components necessary to limit operator exposure are operable in both trains. A CREAFS train is considered operable when the associated:

- Fan is operable
- High-efficiency particulate air (HEPA) filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions; and
- Heater, demister, ductwork, valves, and dampers are operable, and air circulation can be maintained.

The CRE boundary is considered operable when the measured unfiltered air leakage is less than or equal to the leakage value assumed by the licensing basis analysis of DBA consequences to CRE occupants.

The outside air intake and exhaust valves isolate the control room from the outside environment and provide a flowpath between the various components in the control room ventilation system. Depending on the nature of any abnormal condition(s) of one or more of these valves, the impact on the safety system function differs. Excessive leakage in the closed position may impact the CRE boundary function. Excessive closure time may challenge time response limits but not boundary leakage requirements. Closed valves which have acceptable leakage performance that are subsequently deenergized do not impact CRE boundary operability. Also, some of these valves have additional safety system functional requirements in the open position in Modes 1 through 4 following an accident.

2.2 Reason for Proposed Change

On February 20, 2009, the NRC issued Amendment 218 which implements changes consistent with Technical Specification Task Force (TSTF) Traveler TSTF-448, "Control Room Habitability," Revision 3 (Reference 5.3). The NRC's SE for TS Amendment 218 states that adopting TSTF-448 will better assure that the Waterford 3 CRE will remain habitable during normal operation and DBA conditions.

Section 3.2 of the Amendment 218 SE specifically addresses the situation when one CREAFS is inoperable during movement of irradiated fuel assemblies. The Actions consist of either suspending movement with or over irradiated fuel assemblies or placing the operable train in service in the emergency radiation protection mode after 7 days (TS LCO Action 3.7.6.1.d). The SE states that placing the operable train in service ensures that the safety function can be carried out if an accident occurs. Engineering Calculation ECS04-011 (Reference 5.2) demonstrates that the isolate mode for air makeup meets system operability requirements for the duration of the event.

This request is being made to facilitate fuel movement with one train of the CREAFS inoperable due to planned electrical bus or SUPS outage. The continuation of fuel movement with one train of CREAFS inoperable was reviewed and approved by the NRC in TS Amendment 218 and described in the associated SE. Prior to a planned bus outage on a given train, the

CREAFS system would be placed in the "ISOLATE" mode, which closes the outside air intake valves that are part of the Control Room Envelope (CRE) boundary, and then power would be removed. The current SRs, as written, would not be met for the valves on the train which was deenergized since the automatic outside airflow path valves would already be deenergized in their actuated (closed) positions. Similarly, a planned SUPS outage that removes the capability of generating a test signal would also result in an unmet SR. The requested SR exception is consistent with the Amendment 218 SE discussion concerning fuel movement which states, "When one train is inoperable, placing the operable train in service ensures that the safety function can be carried out if an accident occurs."

2.3 Description of Proposed Change

The following text is added to the end of TS SRs 4.7.6.1.d.2 and 4.7.6.1.d.4 as shown in Attachment 1:

", except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position in Modes 5, 6, or defueled."

2.4 Justification for Change

It is recognized that the industry and the NRC are working toward approval of TSTF-541, Revision 2, "Add Exceptions to Surveillance Requirements for Valves and Dampers Locked in the Actuated Position." It is also acknowledged that the Waterford 3 TS LCO 3.7.6.1 would be eligible to be included in a future TSTF-541 submittal. However, Entergy is requesting NRC approval of the change to these two TS SRs for the following reasons:

1. Approval of the requested change to SR 4.7.6.1.d.2 and 4.7.6.1.d.4 will allow electrical bus outage work to occur coincident with fuel movement during the upcoming refueling outage in Fall 2020. The expected timeline for approval of TSTF-541 followed by generation and approval of a site submittal would not support the 2020 Fall outage.
2. The exact scenario of fuel movement with an inoperable CREAFS train was previously evaluated and accepted by the NRC as documented in the Amendment 218 SE.
3. As described in section 2.2 in the SE for Amendment 218, the CRE boundary is considered operable when the measured unfiltered air inleakage is less than or equal to the inleakage value assumed by the licensing basis analysis of DBA consequences to CRE occupants. Removing power from closed boundary valves which have demonstrated acceptable leak tightness to support unfiltered air inleakage requirements does not render the CRE boundary inoperable. This distinction is necessary during fuel movement coincident with a planned bus outage. The bus outage would render the CREAFS unit and valves on the affected train inoperable. With the affected CRE boundary valves deenergized closed, they are inoperable from a repositioning capability aspect, but their leak tightness condition is unaffected and the CRE boundary remains OPERABLE. Therefore, LCO 3.7.6.1 Action "e" would not be entered in this situation and fuel movement could continue.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

Entergy has evaluated the proposed changes to the Technical Specifications (TS) using the criteria in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration.

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: **No.**

The proposed change revises TS surveillance requirements (SR) 4.7.6.1.d.2 and 4.7.6.1.d.4 by adding exceptions which allow excluding from actuation testing those valves and dampers that are locked, sealed, or otherwise secured in the actuated position in Modes 5, 6, and defueled. The performance or lack of performance of an SR is not an initiator of any accident previously evaluated. As a result, the proposed change has no effect on the probability of any accident previously evaluated. The proposed change excludes performance of portions of the SR, but the system must still be capable of performing the safety functions assumed in the accident analysis. Otherwise, the system is inoperable, and the associated TS Actions are followed. As a result, the system continues to perform its mitigating functions and the consequences of any accident previously evaluated are not affected.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: **No.**

The proposed change revises an SR by adding exceptions which allow excluding from actuation testing those valves and dampers that are locked, sealed, or otherwise secured in the actuated position in Modes 5, 6, and defueled. The proposed change will not change the design function or operability requirements of the affected system. The system must still be capable of performing the safety functions assumed in the accident analysis, or the system is inoperable, and the associated TS Actions are followed. The proposed change does not create any credible new failure mechanisms, malfunctions, or accident initiators not considered in the design and licensing bases.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Do the proposed changes involve a significant reduction in a margin of safety?

Response: **No.**

The proposed change revises two SRs by adding exceptions which allow excluding from actuation testing those valves and dampers that are locked, sealed, or otherwise secured in the actuated position in Modes 5, 6 and defueled. The proposed change does not alter the manner in which safety limits, limiting safety system settings, or limiting conditions for operation are determined. The safety analysis assumptions and acceptance criteria are not affected by this change.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based on the above, Entergy concludes that the proposed changes present no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

3.2 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

4.0 ENVIRONMENTAL EVALUATION

The proposed changes would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed changes.

5.0 REFERENCES

- 5.1 NRC Letter, "Waterford Steam Electric Station, Unit 3 – Issuance of Amendment RE: Modification of Requirements Regarding Control Room Habitability" (ADAMS Accession No. ML090360713), dated February 20, 2009.
- 5.2 Engineering Calculation ECS04-01, Revision 0, "Fuel Handling Accident (FHA) Alternative Source Term (AST) Radiological Dose Consequences for 3716 MWt Extended Power Uprate (EPU)," dated September 1, 2004.
- 5.3 Technical Specification Task Force (TSTF) Traveler TSTF-448, "Control Room Habitability," Revision 3 (ADAMS Accession No. ML090360713), dated August 8, 2006.

Enclosure, Attachment 1

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Technical Specifications Page Markups

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.
3. Verifying a system flow rate of 4225 cfm \pm 10% during train operation when tested in accordance with ANSI N510-1975.
- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.
- d. In accordance with the Surveillance Frequency Control Program by:
 1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.8 inches water gauge while operating the train at a flow rate of 4225 cfm \pm 10%.
 2. Verifying that on a safety injection actuation test signal or a high radiation test signal, the train automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks and the normal outside airflow paths isolate  Add Insert 1
 3. Verifying that heaters dissipate 10 +1.0, -1.0 kW when tested in accordance with ANSI N510-1975.
 4. Verifying that on a toxic gas detection signal, the system automatically switches to the isolation mode of operation.  Add Insert 1
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm \pm 10%.
- f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm \pm 10%.
- g. Perform required control room envelope unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.

INSERT 1

", except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position in Modes 5, 6, or defueled."

Enclosure, Attachment 2

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Technical Specifications Clean Pages

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.
 3. Verifying a system flow rate of 4225 cfm \pm 10% during train operation when tested in accordance with ANSI N510-1975.
- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM 03803-1989 at a temperature of 30°C and a relative humidity of 70%.
- d. In accordance with the Surveillance Frequency Control Program by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.8 inches water gauge while operating the train at a flow rate of 4225 cfm \pm 10%.
 2. Verifying that on a safety injection actuation test signal or a high radiation test signal, the train automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks and the normal outside airflow paths isolate, except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position in Modes 5, 6, or defueled.
 3. Verifying that heaters dissipate 10 +1.0, -1.0 kW when tested in accordance with ANSI N510-1975.
 4. Verifying that on a toxic gas detection signal, the system automatically switches to the isolation mode of operation, except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position in Modes 5, 6, or defueled.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm \pm 10%.
- f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm \pm 10%.
- g. Perform required control room envelope unfiltered air leakage testing in accordance with the Control Room Envelope Habitability Program.