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Waterford 3

W3F1-2010-0047

July 20, 2010

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: License Amendment Request
Proposed Change to Technical Specification 3.7.1.2, "Emergency
Feedwater System"
Waterford Steam Electric Station, Unit 3
Docket No. 50-382
License No. NPF-38

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy) hereby requests a license amendment to the Waterford Steam Electric Station, Unit 3 (Waterford 3) Technical Specifications (TS). The proposed amendment is a non-technical change that will modify TS LCO 3/4.7.1.2, "Emergency Feedwater," to clarify the acceptability of transitioning from Mode 4 to Mode 3 with the turbine-driven Emergency Feedwater Pump inoperable but available (i.e. via granting an exception to TS LCO 3.0.4 allowing entry into an operational Mode with TS LCO equipment, 'turbine-driven Emergency Feedwater Pump', associated with a shutdown action inoperable). A description of the proposed change is provided in Attachment 1. A markup of the affected TS pages is contained in Attachment 2. The anticipated clean TS pages are contained in Attachment 3. Associated changes to the TS Bases being controlled under the Waterford 3 TS Bases Control Program are provided for information in Attachment 4.

The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that the change involves no significant hazards consideration.

The proposed change involves no new commitments.

Entergy requests approval of the proposed amendment by March 1, 2011. The basis for this date (less than one year for NRC review and approval) is to have the amendment implemented prior to entry into Mode 3 during plant startup coming out of Refueling Outage 17. The intent is to eliminate confusion associated with turbine-driven EFW pump not having

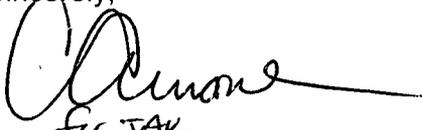
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fully demonstrated operability with performance of surveillance requirements prior to entry into Mode 3 when equipment is required to be operable. Once approved, the amendment shall be implemented within 60 days.

Please contact William Steelman, acting Licensing Manager, at 504-739-6685 if there are any comments regarding this submittal.

I declare under penalty of perjury that the foregoing is true and correct. Executed on July 20, 2010.

Sincerely,

A handwritten signature in black ink, appearing to be 'JAK', with a long horizontal flourish extending to the right.

for JAK
JAK/WJS/MEM

Attachments:

1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (mark-up)
3. Proposed Technical Specification Changes (clean copy)
4. Proposed Technical Specification Bases Changes (mark-up for information only)

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Attachment 1 to

W3F1-2010-0047

Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

This letter is a request to amend Operating License NPF-38 for the Waterford Steam Electric Station, Unit 3 (Waterford 3). Currently, Technical Specification (TS) Limiting Condition for Operation (LCO) 3/4.7.1.2, "Emergency Feedwater System," requires three emergency feedwater (EFW) Pumps to be operable for Mode 3 operation. TS Surveillance Requirements (SR) 4.7.1.2(b) and 4.7.1.2(c) allow a delay of 24 hours after exceeding 750 psig in both steam generators for performance of the quarterly Inservice Testing Program (IST) requirement and the 18 month Engineered Safety Features Actuation System Instrumentation - Functional Unit Emergency Feedwater (EFAS) requirement, respectively, for the turbine-driven EFW pump. This delay allows time to establish suitable conditions to complete required post maintenance activities on the turbine-driven EFW pump governor control and subsequently then time to complete IST and EFAS testing. Since there is no exception to TS LCO 3.0.4 (mode entry is not allowed if the actions of a TS LCO require a shutdown action within a specified interval) and the EFW TS LCO contains a shutdown action for the turbine-driven EFW pump being inoperable, there is a concern of verbatim non-compliance to TS LCO 3.0.4 when entering Mode 3 without having fully demonstrated operability through completion of the quarterly IST and 18 month EFAS surveillance requirements during a plant startup.

2.0 PROPOSED CHANGE

The proposed modification of TS LCO 3/4.7.1.2 provides an exception to TS LCO 3.0.4 to align with the quarterly IST and the 18 month EFAS SR for the turbine-driven EFW pump. This exception will clarify that entry into Mode 3 during plant startup is allowed with the turbine-driven EFW pump inoperable only under the conditions (i.e. with greater than 750 psig in both steam generators on the secondary side) and for the period (24 hours) as provided in quarterly IST and the 18 month EFAS SR pending establishing suitable conditions and completing required post maintenance activities on the turbine-driven EFW pump governor control and subsequently then completing IST and EFAS SR testing on the turbine-driven EFW pump. This change is intended to clarify the licensing bases to eliminate any confusion associated with compliance to TS LCO 3.0.4 when entering Mode 3 during a plant startup with the turbine-driven EFW pump not having fully demonstrated operability in completion of IST and EFAS testing SR. Additionally, the exception to TS SR 4.0.4 is being added to the TS LCO 3/4.7.1.2 as Action (g) for clarity and completeness to restore exception language consistent with what existed in the IST and EFAS SR prior to Amendment No. 173 (Reference 7.1); this exception is in line with conditions and period as existing currently in the IST and EFAS SR.

The following changes are being proposed to the TS Bases as reflected in Attachment 4. Since TS Bases changes are controlled by the Waterford 3 TS Bases Control Program, they are provided for information only.

- Additional discussion is being provided in the 3/4.7.1.2 Emergency Feedwater System, Limiting Conditions for Operation Actions section that entry into Mode 3 during plant startup is allowed per exception to Specifications 3.0.4 and 4.0.4 with the turbine-driven EFW pump inoperable only under the conditions and for the period as provided in the IST and EFAS SR. An explanation of the conditions and the period allowed per the exception

to Specifications 3.0.4 and 4.0.4 is provided along with discussion of the maintenance of the EFW System safety function.

- Additional discussion is being provided in the 3/4.7.1.2 Emergency Feedwater System, Limiting Conditions for Operation Actions section that prior to entry into Mode 2 during plant startup, surveillance requirement 4.7.1.2(d) (testing of various combinations of EFW pumps and valves) is performed to ensure ALL required EFW system flow paths and equipment (as previously described in second paragraph of 3/4.7.1.2 Emergency Feedwater System Bases, which includes the turbine-driven EFW pump) are demonstrated operable before the core is taken critical and significant heat is generated.

3.0 BACKGROUND

The EFW system automatically supplies feedwater to the steam generators to remove heat from the Reactor Coolant System (RCS) upon loss of the normal feedwater supply. The EFW pumps take suction from a common suction header, which is supplied by two separate and independent lines from the condensate storage pool, and discharge to a common discharge header. From the common discharge header, EFW is supplied to the secondary side of the steam generator via separate and independent connections to the main feedwater piping outside containment. The steam generators function as a heat sink for core decay heat, reactor coolant pump heat, and other residual heat. The heat load is dissipated by releasing steam to the atmosphere from the steam generators via the main steam safety valves or atmospheric dump valves. If the main condenser is available, steam may be released via the steam bypass valves.

The EFW system consists of two (50% capacity) motor-driven pumps, one (100% capacity) steam turbine-driven pump, and two diverse flow paths. One flow path supplies steam generator 1 and the second flow path supplies steam generator 2. A flow path consists of piping, valves, and components from the common pump discharge header through two parallel legs to the respective steam generator. Each parallel leg contains a flow control valve and an isolation valve in series. Either of the two parallel legs in a steam generator flow path is capable of supplying 100% of the flow required for the heat removal safety function. One flow path supplying one steam generator is capable of cooling the unit to shutdown cooling entry conditions. Two independent suction paths exist between the Condensate Storage Pool (CSP) and the EFW common pump suction header. Each suction path alone can supply enough flow to assure sufficient net positive suction head for all three EFW pumps.

Each motor-driven EFW pump is powered from an independent Class 1E power supply. The motor-driven EFW pumps supply a common discharge header that is connected to each steam generator flow path. Each motor-driven EFW pump is capable of feeding either steam generator.

The EFW pump-turbine receives steam from both main steam headers upstream of the main steam isolation valves (MSIV). Each of the steam feed lines will supply 100% of the requirements of the EFW pump-turbine. The turbine-driven EFW pump supplies the common discharge header that is connected to each steam generator flow path. The turbine-driven EFW pump is capable of feeding either steam generator.

As stated above, each steam generator flow path contains two parallel flow legs either of which is capable of supplying 100% of the flow required for the heat removal safety function. The flow paths contain DC powered, pneumatic, flow control and isolation valves actuated to provide flow to the appropriate steam generator by the Emergency Feedwater Actuation Signal (EFAS). Each parallel leg contains a flow control valve and an isolation valve in series. These valves are fail-open pneumatic valves. Safety-related nitrogen accumulators serve as a backup to the instrument air system for these valves. Each nitrogen accumulator supplies a pair of EFW valves (a flow control valve in one leg and the isolation valve in the redundant parallel leg of the same flow path).

The EFW system is capable of delivering sufficient flow for heat removal and to reduce the RCS temperature to a point at which shutdown cooling may be placed into service. The EFW System is operated whenever an Emergency Feedwater Actuation (EFAS) signal is generated or it is manually actuated, during surveillance testing, and infrequently during shutdown conditions to fill the steam generators. The non-safety related auxiliary feedwater system supplies feedwater to the steam generators during normal unit startup, shutdown, and hot standby conditions.

The EFW System is actuated automatically by the Engineered Safety Features Actuation System Instrumentation - Functional Unit Emergency Feedwater (EFAS). The EFAS logic is designed to feed either or both steam generators with low levels. The Main Steam Isolation System (MSIS) in conjunction with EFAS will isolate the EFW System from a steam generator having a significantly lower steam pressure than the other steam generator to ensure EFW is supplied only to an intact steam generator. The EFAS automatically actuates the EFW pumps and associated valves and controls when required to ensure an adequate feedwater supply to the steam generators.

A concern was raised at Waterford 3 during plant startup from Refuel 15 that Waterford 3 had entered Mode 3 with the turbine-driven EFW pump inoperable. In the original condition report a reportability review Waterford 3 noted that the turbine-driven EFW pump had configuration of lifted leads on the pump governor control system associated with post maintenance activities. Since the IST and EFAS SR allow an exception for the turbine-driven EFW pump of 24 hours after exceeding 750 psig in both steam generators to establish suitable conditions and complete required post maintenance activities, no report was made to the NRC pursuant to 10 CFR 50.73. The original evaluation noted that the conditions of the exception were met (i.e. the turbine-driven EFW pump surveillance requirements were completed as required prior to 24 hours after exceeding 750 psig in both steam generators).

A subsequent review at Waterford 3 challenged not reporting the inoperable turbine-driven EFW pump to the NRC pursuant to 10 CFR 50.73 as a non-conformance with TS LCO 3.0.4. TS LCO 3.0.4 does not allow entry into a mode if the actions of a TS LCO (3/4.7.1.2 in this instance) require a plant shutdown. Since TS LCO 3.7.1.2 requires all three EFW pumps to be operable in Mode 3 and only the two motor-driven EFW pumps were operable (lifted leads on the pump governor control system of turbine-driven EFW pump would have limited pump to minimum speed) when the plant entered Mode 3, Waterford 3 concluded that the site was in non-conformance with TS LCO 3.0.4 and issued a licensee event report (Reference 7.2). Aside from the non-conformance with TS LCO 3.0.4 with turbine-driven EFW pump limited to minimum speed, it was noted that the IST and EFAS SR are not completed until the turbine-driven EFW pump dynamic final calibration of the governor valve speed control unit governor

control system is complete. The turbine-driven EFW pump dynamic final calibration of the governor valve speed control unit governor control system requires entry into Mode 3 to establish suitable conditions. The turbine-driven EFW pump IST and EFAS SR are completed after the dynamic final calibration of the governor valve speed control unit governor control system is complete to avoid adversely impacting the pump performance parameters. Thus, the turbine-driven EFW pump is not fully demonstrated operable with completion of the IST and EFAS SR until the plant is in Mode 3. Since the plant must enter Mode 3 to complete the dynamic final calibration of the governor valve speed control unit governor control system before the IST and EFAS SR are performed, the turbine-driven EFW pump enters Mode 3 without fully demonstrating operability. This verbatim non-compliance with TS LCO 3.0.4 for the turbine-driven EFW pump associated with the IST and EFAS SR delay is the subject concern of this request.

The intent of this request is to remove this verbatim non-conformance to TS LCO 3.0.4 concern when the plant enters Mode 3 during plant startup to establish suitable conditions to complete dynamic final calibration of the governor valve speed control unit governor control system for the turbine-driven EFW pump before the IST and EFAS SR have been completed. This request is non-technical as there is no change to equipment operation, design or practices associated with administratively adding an exception to TS LCO 3.0.4 since the turbine-driven EFW pump is available (i.e. there is a reasonable expectation of successfully completing the IST and EFAS SR once steam is supplied to the turbine-driven EFW pump turbine in Mode 3 during plant startup). With the granting of an exception to TS LCO 3.0.4, the plant will be able to enter Mode 3 during a plant startup with the turbine-driven EFW pump available awaiting establishing suitable conditions (i.e. suitable steam pressure in the steam generators) to perform dynamic final calibration of the governor valve speed control unit governor control system. The exception to TS LCO 3.0.4 aligns with the NRC granted delays for establishing suitable plant conditions to complete dynamic final calibration of the governor valve speed control unit governor control system of the turbine-driven EFW pump and then to complete the IST and EFAS SR as contained in Reference 7.1.

4.0 TECHNICAL ANALYSIS

The addition of an exception to TS LCO 3.0.4 only to align with the allowed delay (24 hours after exceeding 750 psig in both steam generators) for the quarterly IST and 18 months EFAS SR is administrative in nature and will clarify that the turbine-driven EFW pump is allowed to be inoperable when entering Mode 3 during a plant startup. The turbine-driven EFW pump dynamic final calibration of the governor valve speed control unit governor control system requires entry into Mode 3 to establish suitable conditions. This request is non-technical as there is no change to equipment operation, design or practices associated with administratively adding this exception to TS LCO 3.0.4 since the turbine-driven EFW pump is available (i.e. there is a reasonable expectation of successfully completing the IST and EFAS SR once steam is supplied to the turbine-driven EFW pump turbine in Mode 3 during plant startup). The turbine-driven EFW pump IST and EFAS SR are completed after the dynamic final calibration of the governor valve speed control unit governor control system is complete to avoid adversely impacting the pump performance parameters. The allowance of the delay to complete the quarterly IST and 18 months EFAS SR in Reference 7.1 was provided in the evaluation section of the Safety Evaluation Report.

During plant startup, Waterford 3 enters Mode 3 with parameters of K-eff less than .99, rated thermal power (excluding decay heat) of 0%, and Reactor Coolant System average temperature greater than or equal to 350 degrees Fahrenheit. In this plant condition, there is insufficient steam pressure on the secondary side of the steam generators for the turbine-driven EFW pump to complete the post maintenance activities (i.e. dynamic final calibration of the governor valve speed control unit governor control system). The dynamic final calibration of the governor valve speed control unit requires steam pressure only achievable after entry into Mode 3 for the full speed range final adjustment. As such, this dynamic final calibration (post maintenance activity) must be complete prior to performing Inservice Testing and EFAS actuation testing for the turbine-driven EFW pump. The allowance of the delay to complete the quarterly IST and 18 months EFAS SR in Reference 7.1 was provided in the evaluation section of the Safety Evaluation Report.

During the plant startup, when entering Mode 3 the sub-critical reactor has not reached the point of adding heat to the Reactor Coolant System through the fission process. In the transition period from entry into Mode 3 at 350 degrees Fahrenheit in the Reactor Coolant System with the turbine-driven EFW pump inoperable (from the standpoint of not having completed the IST and EFAS testing surveillance requirement performance) but available, there are two motor-driven EFW pumps Operable. The turbine-driven EFW pump is available albeit at a potentially reduced flow performance capability since the dynamic final calibration of the governor valve speed control unit has not yet been completed. The safety function of achieving shutdown cooling entry condition (i.e. 350 degrees Fahrenheit in the Reactor Coolant System) of the EFW System continues to be met due to two motor-driven EFW pumps being operable and the turbine-driven EFW pump being available.

When sufficient steam pressure on the secondary side of the steam generators to perform the dynamic final calibration of the governor valve speed control unit of the turbine-driven EFW pump is reached, the plant completes this activity and then completes IST and EFAS SR. Per the allowed delay for the turbine-driven EFW pump, there are 24 hours (after exceeding 750 psig in both steam generators) to complete the IST and EFAS SR. Until the turbine-driven EFW pump is declared operable, the plant is an action statement for the turbine-driven EFW pump being inoperable, thus the plant is not allowed to have the turbine-driven EFW pump inoperable in Mode 3 beyond time as allowed in the EFW System action statement.

Since the two motor-driven EFW pumps are required to be operable when entering Mode 3 from Mode 4, then for the worst case postulated accident scenario during plant startup, with the turbine-driven EFW pump considered inoperable but available (utilizing the exception to TS LCO 3.0.4 as tied to the quarterly IST and 18 month EFAS SR for fully demonstrating operability of the turbine-driven EFW pump), the EFW System safety function of achieving shutdown cooling entry conditions would be met.

Prior to entry into Mode 2 (again before starting up the reactor and reaching the point of adding heat to the Reactor Coolant System in the reactor from the fission process), TS SR 4.7.1.2(d) requires testing of various combinations of EFW pumps and valves to ensure all required EFW system flow paths and equipment (which includes the turbine-driven EFW pump) are demonstrated operable before sufficient core heat is generated that would require the operation of the EFW System during a subsequent shutdown.

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

Entergy Operations, Inc. (Entergy) proposes to modify Technical Specification (TS) 3/4.7.1.2, "Emergency Feedwater System," by adding an exception to TS LCO 3.0.4 to align with the quarterly IST and the 18 month EFAS SR for the turbine-driven EFW pump. This exception will clarify that entry into Mode 3 is allowed with the turbine-driven EFW pump inoperable only under the conditions and for the period as provided in the quarterly IST and 18 month EFAS SR. When entering Mode 3, the turbine-driven EFW pump is available (i.e. there is a reasonable expectation that once sufficient steam pressure is available to the turbine-driven EFW pump turbine, it will be able to successfully complete the quarterly IST and 18 month EFAS surveillance requirements to fully demonstrate operability).

This change to TS LCO 3.7.1.2 does not involve any physical changes to the plant or to the EFW system design that would affect the intent of the General Design Criteria, national standards, or engineering principles. The change clarifies the Technical Specification requirements with respect to the Licensing Basis for TS LCO 3.7.1.2. Consistency with the defense-in-depth philosophy is maintained. The independence of fission product barriers has not been degraded by the TS change. Sufficient safety margins are maintained in that the proposed change is not in conflict with approved Codes and standards relevant to the EFW system.

In conclusion, Entergy has determined that the proposed changes do not require any *exception* or relief from regulatory requirements, other than the TS, and do not affect systems, structures, and components described in the Waterford 3 Final Safety Analysis Report (FSAR).

5.2 No Significant Hazards Consideration

Entergy Operations, Inc. has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10CFR50.92, "Issuance of amendment," as discussed below:

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

Response: No.

The proposed addition of an exception to TS LCO 3.0.4 for entry into Mode 3 during a plant startup for the turbine-driven EFW pump for a plant condition when the turbine-driven EFW pump would be unable to complete its post maintenance activities (i.e. dynamic final calibration of the governor valve speed control unit governor control system) due to insufficient steam pressure in the steam generator secondary side and then to complete the quarterly IST and 18 month EFAS SR within the allowance of the delay of the respective SR is administrative in nature.

This change will clarify that the turbine-driven EFW pump is not required to fully demonstrate operability (i.e. be inoperable pending completion of the quarterly IST and 18 month EFAS SR) during plant startup prior to entry into Mode 3 under the conditions and for the period as provided in the quarterly IST and 18 month EFAS SR as granted by the NRC in Reference 7.1. When the plant enters Mode 3 during plant startup, the turbine-driven EFW pump is available (i.e. there is a reasonable expectation that once sufficient steam pressure is available to the turbine-driven EFW pump turbine, it will be able to successfully complete the quarterly IST and 18 month EFAS surveillance requirements to fully demonstrate operability).

Prior to entry into Mode 2, surveillance requirement testing of various combinations of EFW pumps and valves will ensure ALL required EFW system flow paths and equipment (which includes the turbine-driven EFW pump) are demonstrated operable before sufficient core heat is generated that would require the operation of the EFW System during a subsequent shutdown.

Since the two motor-driven EFW pumps are required to be operable when entering Modes 3 from Mode 4, then for the worst case postulated accident scenario during plant startup, with the turbine-driven EFW pump considered inoperable but available (utilizing the exception to TS LCO 3.0.4 as tied to the quarterly IST and 18 month EFAS SR for fully demonstrating operability of the turbine-driven EFW pump), the EFW System safety function of achieving shutdown cooling entry conditions would be met.

This request is merely a clarification and does not present any change to equipment operation, design or practices. The proposed clarification is not an accident initiator and will not adversely affect plant safety functions. The EFW System capability to provide its specified function of being able to achieve shutdown cooling entry conditions of the Reactor Coolant system is unchanged by this clarification. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The proposed addition of an exception to TS LCO 3.0.4 for entry into Mode 3 during a plant startup for the turbine-driven EFW pump for a plant condition when the turbine-driven EFW pump would be unable to complete its post maintenance activities (i.e. dynamic final calibration of the governor valve speed control unit governor control system) due to insufficient steam pressure in the steam generator secondary side and then to complete the quarterly IST and 18 month EFAS SR within the allowance of the delay of the respective SR is administrative in nature.

This change will clarify that the turbine-driven EFW pump is not required to fully demonstrate operability (i.e. be inoperable pending completion of the quarterly IST and 18 month EFAS SR) during plant startup prior to entry into Mode 3 under the

conditions and for the period as provided in the quarterly IST and 18 month EFAS SR as granted by the NRC in Reference 7.1. When the plant enters Mode 3 during plant startup, the turbine-driven EFW pump is available (i.e. there is a reasonable expectation that once sufficient steam pressure is available to the turbine-driven EFW pump turbine, it will be able to successfully complete the quarterly IST and 18 month EFAS surveillance requirements to fully demonstrate operability).

Prior to entry into Mode 2, surveillance requirement testing of various combinations of EFW pumps and valves will ensure ALL required EFW system flow paths and equipment (which includes the turbine-driven EFW pump) are demonstrated operable before sufficient core heat is generated that would require the operation of the EFW System during a subsequent shutdown.

The addition of this exception to TS LCO 3.0.4 for the turbine-driven EFW pump introduces no new mode of plant operation and does not alter the EFW System functional capability. The scope of this proposed change does not establish a potential new accident precursor. This proposed change will not change the design, configuration or method of operation of the EFW System. No new possibility for an accident is introduced by the proposed clarification. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed addition of an exception to TS LCO 3.0.4 for entry into Mode 3 during a plant startup for the turbine-driven EFW pump for a plant condition when the turbine-driven EFW pump would be unable to complete its post maintenance activities (i.e. dynamic final calibration of the governor valve speed control unit governor control system) due to insufficient steam pressure in the steam generator secondary side and then to complete the quarterly IST and 18 month EFAS SR within the allowance of the delay of the respective SR is administrative in nature.

This change will clarify that the turbine-driven EFW pump is not required to fully demonstrate operability (i.e. be inoperable pending completion of the quarterly IST and 18 month EFAS SR) during plant startup when entering Mode 3 under the conditions and for the period as provided in the quarterly IST and 18 month EFAS SR as granted by the NRC in Reference 7.1. When the plant enters Mode 3 during plant startup, the turbine-driven EFW pump is available (i.e. there is a reasonable expectation that once sufficient steam pressure is available to the turbine-driven EFW pump turbine, it will be able to successfully complete the quarterly IST and 18 month EFAS surveillance requirements to fully demonstrate operability).

Prior to entry into Mode 2, surveillance requirement testing of various combinations of EFW pumps and valves will ensure ALL required EFW system flow paths and equipment (which includes the turbine-driven EFW pump) are demonstrated operable

before sufficient core heat is generated that would require the operation of the EFW System during a subsequent shutdown.

The proposed clarification does not adversely affect Emergency Feedwater equipment operating practices. The EFW System has the same capabilities as before to mitigate accidents. Surveillance requirements are not reduced by the proposed change. The EFW System capability to provide its specified function of being able to achieve shutdown cooling entry conditions of the Reactor Coolant System following a worst case postulated accident is unchanged by this clarification. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Entergy concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10CFR50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.3 Environmental Considerations

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10CFR51.22(c)(9). Therefore, pursuant to 10CFR51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 PRECEDENCE

In Reference 7.3, the NRC issued an amendment to South Texas Project clarifying that the provision of TS LCO 3.0.4 are not applicable for entry into Mode 3 for the turbine driven Auxiliary Feedwater (equivalent to Emergency Feedwater) pump.

7.0 REFERENCES

- 7.1 NRC letter to Waterford 3 dated October 4, 2001, Waterford Steam Electric Station – Unit 3, Issuance of Amendment RE: Emergency Feedwater System (TAC No MB2010)
- 7.2 Entergy letter W3F1-2009-0013 dated April 27, 2009 "Licensee Event Report 09-001-00 - 3.0.4 Violation: Mode Change with an INOPERABLE Emergency Feedwater Pump" (ADAMS Accession No. ML091190308)
- 7.3 NRC letter to South Texas Project dated May 27, 1997, South Texas Project, Units 1 and 2 – Amendment No's 87 and 74 to Facility Operating License No's NPF-76 and NPF-80 (TAC No's M96338 and M96339)

Attachment 2 to

W3F1-2010-0047

Proposed Technical Specification Changes (mark-up)

PLANT SYSTEMS

EMERGENCY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 Three emergency feedwater (EFW) pumps and two flow paths shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one steam supply to the turbine-driven EFW pump inoperable, restore the steam supply to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With one steam supply to the turbine-driven EFW pump and one motor-driven EFW pump inoperable and the EFW flow paths able to deliver at least 100% flow to their respective steam generators, restore the steam supply or motor-driven EFW pump to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With one steam supply to the turbine-driven EFW pump and both motor-driven EFW pumps inoperable and the EFW flow paths able to deliver at least 100% flow to their respective steam generators, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- d. With the EFW system inoperable for reasons other than those described in ACTION (a), (b), or (c), and able to deliver at least 100% flow to either steam generator, restore the EFW system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- e. With the EFW system inoperable for reasons other than those described in ACTION (a), (b), or (c), and able to deliver at least 100% combined flow to the steam generators, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- f. With the EFW system inoperable and unable to deliver at least 100% combined flow to the steam generators, immediately initiate action to restore the ability to deliver at least 100% combined flow to the steam generators. LCO 3.0.3 and all other LCO ACTIONs requiring MODE changes are suspended until the EFW system is capable of delivering at least 100% combined flow to the steam generators.
- g. Only as allowed by Surveillance Requirements 4.7.1.2(b) and 4.7.1.2(c), the provisions of Specifications 3.0.4 and 4.0.4 are not applicable to the turbine-driven EFW pump for entry into Mode 3.

Attachment 3 to

W3F1-2010-0047

Proposed Technical Specification Changes (clean copy)

PLANT SYSTEMS

EMERGENCY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 Three emergency feedwater (EFW) pumps and two flow paths shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one steam supply to the turbine-driven EFW pump inoperable, restore the steam supply to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With one steam supply to the turbine-driven EFW pump and one motor-driven EFW pump inoperable and the EFW flow paths able to deliver at least 100% flow to their respective steam generators, restore the steam supply or motor-driven EFW pump to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With one steam supply to the turbine-driven EFW pump and both motor-driven EFW pumps inoperable and the EFW flow paths able to deliver at least 100% flow to their respective steam generators, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- d. With the EFW system inoperable for reasons other than those described in ACTION (a), (b), or (c), and able to deliver at least 100% flow to either steam generator, restore the EFW system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- e. With the EFW system inoperable for reasons other than those described in ACTION (a), (b), or (c), and able to deliver at least 100% combined flow to the steam generators, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- f. With the EFW system inoperable and unable to deliver at least 100% combined flow to the steam generators, immediately initiate action to restore the ability to deliver at least 100% combined flow to the steam generators. LCO 3.0.3 and all other LCO ACTIONS requiring MODE changes are suspended until the EFW system is capable of delivering at least 100% combined flow to the steam generators.
- g. Only as allowed by Surveillance Requirements 4.7.1.2(b) and 4.7.1.2(c), the provisions of Specifications 3.0.4 and 4.0.4 are not applicable to the turbine-driven EFW pump for entry into Mode 3.

Attachment 4 to

W3F1-2010-0047

Proposed Technical Specification Bases Changes

(Mark-up provided for information only)

PLANT SYSTEMS

BASES

3/4.7.1.2 EMERGENCY FEEDWATER SYSTEM (Continued)

Limiting Conditions for Operation (Continued)

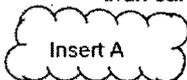
The 72 hour completion time is reasonable based on the redundant capabilities afforded by the EFW system, the time needed for repairs, and the low probability of a design basis event occurring during this period.

- e. By maintaining OPERABLE pumping capacity capable of supplying 100% of the required EFW flow and flow paths capable of delivering 100% of the required EFW flow to the steam generators the EFW system is capable of supporting a unit cooldown but may not be capable of performing its design function of residual heat removal for all events. Due to the seriousness of this condition, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within the following 6 hours. The allowed completion time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

This ACTION primarily addresses flow path inoperability when the system no longer has the ability to deliver 100% of the required EFW flow to one or both steam generators. For example, with one flow path inoperable and not able to provide 100% flow to its respective steam generator this ACTION would be entered. Similarly, if both flow paths were inoperable and only one of the inoperable flow paths could provide 100% of the required EFW flow to its respective steam generator this ACTION would be entered. Also, if both flow paths were inoperable and neither could provide 100% of the required EFW flow to its respective steam generator but together both flow paths could provide 100% of the required EFW flow to the steam generators (e.g., 50% to one and 50% to the other (or some combination equaling 100%)) this ACTION would be entered.

- f. ACTION (f) indicates that all required MODE changes or power reductions are suspended until the EFW system is capable of delivering 100% of the required EFW flow to the steam generators.

With pumping capacity unable to supply 100% of the required EFW flow and/or two flow paths not capable of delivering 100% of the required EFW flow to the steam generators in MODEs 1, 2, and 3, the unit is in a seriously degraded condition with no safety-related means for conducting a cooldown. In such a condition, the unit should not be perturbed by any action, including a power change that might result in a trip. The seriousness of this condition requires that action be started immediately to restore the ability to deliver at least 100% of the required EFW flow to the steam generators combined as soon as possible. This ACTION is modified to indicate that all MODE changes or power reductions are suspended until the ability to deliver 100% of the required flow to the steam generators combined can be restored because they could force the unit into a less than safe condition.



INSERT A

The exception to TS LCO 3.0.4 and 4.0.4 during plant startup allows the turbine-driven EFW pump to be INOPERABLE only when entering Mode 3 under the conditions and for the period (i.e. 24 hours after exceeding 750 psig in both steam generators) as contained in TS SR 4.7.1.2(b) and 4.7.1.2(c), quarterly Inservice Testing (IST) and 18 month Engineered Safety Features Actuation System Instrumentation - Functional Unit Emergency Feedwater (EFAS), respectively. When the plant enters Mode 3 during a plant startup coming out of an outage, there is insufficient steam pressure to complete the dynamic final calibration of the governor valve speed control unit of the turbine-driven EFW pump. In this condition, the turbine-driven EFW pump is available (i.e. there is a reasonable expectation that once sufficient steam pressure is available to the turbine-driven EFW pump turbine, it will be able to successfully complete the quarterly IST and 18 month EFAS surveillance requirements to fully demonstrate operability). Although the turbine-driven EFW pump does not have sufficient steam pressure to complete dynamic final calibration of the governor valve speed control unit, the turbine-driven EFW pump still maintains performance capability (albeit at a potentially reduced flow performance based upon governor valve speed control unit settings) to provide the system safety function of cooling the plant to shutdown cooling entry conditions. This exception does not allow Mode 3 to be entered during a plant startup while performing maintenance activities that cause the turbine driven EFW pump to be unavailable.

The safety function of the EFW System to ensure the Reactor Coolant System can be cooled to shutdown cooling system entry conditions continues to be met under all plant conditions and for the worst case postulated accident from the point in time when the plant enters Mode 3 during the plant startup with the inoperable turbine-driven EFW pump through the point in time when the turbine-driven EFW pump is restored to OPERABLE condition. The delay of 24 hours after both steam generators have reached sufficient steam pressure on the secondary side is to complete post maintenance activities (i.e. dynamic final calibration of the governor valve speed control unit) and then to complete IST and EFAS testing surveillance requirements.

Prior to entry into Mode 2, surveillance requirement testing of various combinations of EFW pumps and valves will ensure ALL required EFW system flow paths and equipment (including the turbine-driven EFW pump as previously described in second paragraph of this section of the bases) are demonstrated operable before the core is taken critical and significant heat is generated.