Entergy

Entergy Operations, Inc.
17265 River Road
Killona, LA 70066
Tel 504 739 6660
Fax 504 739 6678

Charles M. Dugger
Vice President, Operations
Waterford 3

W3F1-99-0024
A4.05
PR

August 4, 1999

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

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Technical Specification Change Request NPF-38-223
Low Pressure Safety Injection Allowed Outage Time Increase

Gentlemen:

In accordance with 10CFR50.90, Entergy is hereby proposing to amend Operating License NPF-38 for Waterford 3 by requesting the attached changes to the Technical Specifications (TS). The proposed change modifies TS 3.5.2 to extend the allowed outage time to seven days for one Low Pressure Safety Injection (LPSI) train inoperable. Additionally, an allowed outage time of 72 hours is imposed for other conditions where the equivalent of 100% Emergency Core Cooling System subsystem flow is available. If 100% ECCS flow is unavailable due to two inoperable LPSI trains, an ACTION has been added to restore at least one LPSI train to OPERABLE status within one hour or place the plant in HOT STANDBY in 6 hours and to exit the MODE of applicability in the following 6 hours. In the event the equivalent of 100% ECCS subsystem flow is not available due to other conditions, TS 3.0.3 is entered. The Limiting Condition for Operation terminology is being changed for consistency with the ECCS requirements. Attachment C also contains the remainder of the Bases pages for Section 3/4.5 to include page renumbering.

This proposed change is a collaborative effort of participating Combustion Engineering Owners Group members based on an integrated review and assessment of plant operations, deterministic/design basis factors and plant risk. Joint Application Report CE NPSD-995, "Joint Applications Report for Low Pressure

A001

Safety Injection System AOT Extension," referenced herein in support of this change, has been submitted to the NRC Staff for review and approval under separate letter CEOG-95-344 dated July 10, 1995. A change to the TS Bases 3/4.5.2 has been included to support this change.

Additionally, this proposed change adds a Section 6.16 "Configuration Risk Management Program" to the Administrative Controls of the TS. The purpose of the Configuration Risk Management Program (CRMP) is to ensure that a proceduralized Probabilistic Risk Assessment-informed process is in place that assesses the overall impact of plant maintenance on plant risk. Implementation of the CRMP will enable appropriate actions to be taken or decisions to be made to minimize and control risk when performing on-line maintenance for Systems, Structures, and Components with a risk-informed Completion Time. TS 6.16 will be applicable to TS 3.5.2 for the LPSI subsystem because the Completion Time for TS 3.5.2 is a "risk-informed Completion Time." The CRMP is consistent with the Amendment Application approved for San Onofre Nuclear Generating Station.

Technical Specification Change Request (TSCR) NPF-38-222, which affects the same pages as this TSCR, was submitted in August 1999 by letter W3F1-99-0023. Renumbering of the proposed ACTIONS in this submittal and addition of the Bases changes from NPF-38-222 will be necessary upon approval of TSCR NPF-38-222. Attachment D to this request provides the proposed combination of these two TSCRs. Attachment D also contains the remainder of the Bases pages for Section 3/4.5 to include page renumbering.

This proposed change has been evaluated in accordance with 10CFR50.91(a)(1), using the criteria in 10CFR50.92(c), and it has been determined that this request involves no significant hazards consideration. This TS and Bases change is modeled after the guidelines of NUREG 1432, "Standard Technical Specifications - Combustion Engineering Plants."

The circumstances surrounding this change do not meet the NRC Staff's criteria for exigent or emergency review. However, Entergy is requesting NRC Staff approval of the TS change prior to May 31, 2000 to allow on-line maintenance in support of Refuel 10, which is currently scheduled to begin September 15, 2000. Entergy Operations requests the effective date for this change be within 60 days of approval.

There are no commitments associated with this request. Should you have any questions or comments concerning this request, please contact Everett Perkins at (504) 739-6379 or Gene Wemett at (504) 739-6692.

Very truly yours,

C.M. Dugger
Vice President, Operations
Waterford 3

CMD/CWT/rtk
Attachments: Affidavit
NPF-38-223

cc: E.W. Merschoff, NRC Region IV
C.P. Patel, NRC-NRR
J. Smith
N.S. Reynolds
NRC Resident Inspectors Office
Administrator Radiation Protection Division
(State of Louisiana)
American Nuclear Insurers

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of	)	
	)	
Entergy Operations, Incorporated	)	Docket No. 50-382
Waterford 3 Steam Electric Station	)	

AFFIDAVIT

Charles M. Dugger, being duly sworn, hereby deposes and says that he is Vice President Operations - Waterford 3 of Entergy Operations, Incorporated; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached Technical Specification Change Request NPF-38-223; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.

Charles M. Dugger
Vice President Operations - Waterford 3

STATE OF LOUISIANA)
) ss
PARISH OF ST. CHARLES)

Subscribed and sworn to before me, a Notary Public in and for the Parish and State above named this 4 day of August, 1999.

Notary Public

My Commission expires 6-30-2000

DESCRIPTION AND NO SIGNIFICANT HAZARDS CONSIDERATION
DETERMINATION OF PROPOSED CHANGE NPF-38-223

Summary of Proposed Changes

The proposed change requests a change to Technical Specification (TS) 3.5.2. The purpose of this Technical Specification Change Request is to extend the allowed outage time (AOT) to seven (7) days for the low pressure safety injection (LPSI) train for 3.5.2. Additionally, an AOT of 72 hours is imposed for other conditions in TS 3.5.2 where the equivalent of 100% Emergency Core Cooling System (ECCS) subsystem flow is available. If 100% ECCS flow is unavailable due to two inoperable LPSI trains, an ACTION has been added to 3.5.3 to restore at least one LPSI train to OPERABLE status within one hour or place the plant in HOT STANDBY in 6 hours and to reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F in the following 6 hours. In the event the equivalent of 100% ECCS subsystem flow is not available due to other conditions, TS 3.0.3 is entered. The Limiting Condition for Operation for both 3.5.2 is being changed from referencing HPSI and LPSI pumps to referencing HPSI and LPSI trains. The end state for 3.5.2 ACTIONs is being changed to "reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F" for consistency with the Applicability for 3.5.2. A change to the TS Bases 3/4.5.2 has been included to support this change. Furthermore, this proposed change adds a Section 6.16 "Configuration Risk Management Program" to the Administrative Controls of the TS and the index.

Existing Specification

See Attachment A

Proposed Marked-up Specification

See Attachment B

Proposed Specification

See Attachment C

Proposed Combination of NPF-38-223 and NPF-38-222

See Attachment D

Background

The LPSI trains in combination with the high pressure safety injection (HPSI) trains form two redundant Emergency Core Cooling System (ECCS) subsystems. The two LPSI pumps are high volume, low head centrifugal pumps designed to supplement the safety injection tank (SIT) inventory in reflooding the reactor vessel to insure core cooling during the early stages of a large loss of coolant accident (LOCA).

The LPSI pumps take suction from the refueling water storage pool (RWSP) during the injection phase of a LOCA event and pump the water through two separate discharge headers. Prior to penetrating containment, each LPSI header splits into two injection paths, with individual injection valves. Each supply header has a motor operated flow control valve. Once inside containment, the LPSI headers combine with HPSI and SIT discharge piping and direct the flow through a common injection header into each of the four reactor coolant system cold legs. The LPSI system pumps start and valves open upon receipt of a safety injection actuation signal. When RWSP level is drawn down by inventory transfer during the injection phase, a low RWSP level actuates the recirculation actuation signal (RAS) which stops the LPSI pumps and opens the Safety Injection System sump isolation valves. The HPSI pumps and containment spray pumps remain running for long term containment and core cooling.

The LPSI system is also used in conjunction with a portion of the containment spray system for decay heat removal in the shutdown cooling alignment.

Description and Safety Considerations

The current Waterford 3 TS address the LPSI pumps and suction flow path as a portion of the ECCS subsystem. TS 3.5.2 requires two independent ECCS subsystems to be OPERABLE. With one ECCS subsystem inoperable, based on any component inoperability, the subsystem must be returned to OPERABLE status within 72 hours or the plant placed in HOT SHUTDOWN within the following 6 hours. The proposed change will allow up to seven (7) days to restore operability to a LPSI train should that be the cause of ECCS subsystem inoperability. An AOT of 72 hours is imposed for other conditions where the equivalent of 100% ECCS flow is available consistent with NUREG 1432. If 100% ECCS flow is unavailable due to two inoperable LPSI trains, an ACTION has been added to restore at least one LPSI train to OPERABLE status within one hour or place the plant in HOT STANDBY in 6 hours and to reduce pressurizer

pressure to less than 1750 psia and RCS average temperature to less than 500°F in the following 6 hours. The time requirements of 1 hour and 6 hours are consistent with the requirements of TS 3.0.3. In the event the equivalent of 100% ECCS subsystem flow is not available due to other conditions, TS 3.0.3 is entered. The end state for 3.5.2 is being changed to "reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F" for consistency with the Applicability for 3.5.2. This corrects an error in the current TS, in that the ACTION's end state does not exit the MODE of Applicability.

Additionally, the current TS 3.5.2 Limiting Conditions for Operation (LCO) items "a" and "b" refer to the operability of HPSI pumps and LPSI pumps. In actuality, the LCO should refer to HPSI and LPSI trains as being required for operability, since item "c" requires only the suction flow path to be OPERABLE. This request changes the LCO to the correct terminology from pumps to trains. The Bases for the TS will provide a definition of trains. Where a HPSI train, a LPSI train and an OPERABLE suction flowpath (as specified in the LCO) is referenced, the term ECCS subsystem is retained and defined in the Bases.

The Bases contains a statement that below 350°F one OPERABLE ECCS subsystem is acceptable. This value is being changed to 500°F and the RCS pressure below 1750 psia. This change is administrative in nature as TS Amendment 34 changed the TS requirement for one ECCS subsystem from 350°F to 500°F. This change to the Bases to reflect the change in the TS requirement is thought to have been omitted from the Amendment 34 Bases change.

The Combustion Engineering Owners Group (CEOG) report CE NPSD-995, "Joint Applications Report for Low Pressure Safety Injection System AOT Extension," explores the proposed change to a 7 day AOT utilizing current probabilistic safety analysis (PSA) methodologies to address the changes in risk when compared with current TS time limitations.

This study of the risk factors that are impacted by extending the AOT for a single LPSI train from 72 hours to seven (7) days demonstrates a negligible increase in risk (<1%). In order to perform a more complete assessment of the overall change in risk, an accounting for avoided risks associated with reducing power and going to hot or cold shutdown must be considered. This "transition risk" is important in understanding the trade-off between shutting down the plant compared with restoring the LPSI train to operability while at power. Also of interest in assessing overall plant risk is the risk avoided based on LPSI system maintenance while in COLD SHUTDOWN. Every time the plant is placed in COLD SHUTDOWN the LPSI system is required for decay heat removal when in the shutdown cooling mode of operation. Any maintenance performed on the LPSI system during shutdown cooling operations adds to the risk of a loss of

shutdown cooling event. Therefore, performing LPSI system maintenance with the unit on-line, when the LPSI system is not normally in demand, represents a decrease in shutdown risk.

The results of this study concluded that the change in core damage frequency due to increasing the LPSI AOT from 72 hours to seven (7) days is insignificant (<1%). Additionally, when the reduction in transition and shutdown risks are considered, it can be shown that there is an overall reduction in plant risk. Thus, it is the conclusion of the study that the overall plant impact will be either risk beneficial, or at the very least, risk neutral.

This TS and Bases change is consistent with the guidelines of NUREG 1432, "Standard Technical Specifications - Combustion Engineering Plants."

This proposed change adds a new Section 6.16, "Configuration Risk Management Program" (CRMP) to the TS. The purpose of the CRMP is to ensure that a proceduralized Probabilistic Risk Assessment-informed process is in place that assesses the overall impact of plant maintenance (planned or unplanned) on plant risk. Implementation of the CRMP will enable appropriate actions to be taken or decisions to be made to minimize and control risk when performing on-line maintenance for Systems, Structures, and Components with a risk-informed Completion Time. TS 6.16 will be applicable to TS 3.5.2 for the LPSI subsystem because the Completion Time for TS 3.5.2 is a "risk-informed Completion Time."

To ensure plant safety is maintained and monitored, Entergy will implement a Configuration Risk Management Program for Waterford 3, which is to be applicable to TS 3.5.2 for the LPSI train.

1. Purpose of CRMP

The purpose of the Configuration Risk Management Program is to ensure that a proceduralized Probabilistic Risk Assessment (PRA)-informed process is in place that assesses the overall impact of plant maintenance on plant risk. Implementation of the CRMP will enable appropriate actions to be taken or decisions to be made to minimize and control risk when performing on-line maintenance for Systems, Structures, and Components (SSCs) with a risk-informed Completion Time.

2. Scope of CRMP

The scope of the SSCs included in the CRMP are all SSCs modeled in the plant PRA, in addition to all SSCs considered to be of High Safety Significance per the Maintenance Rule Regulatory Guide (Regulatory Guide 1.160, Rev. 2).

The CRMP includes the following components and key elements:

Components

a. Risk Assessment Tool
b. Tier 2 restrictions
c. Level 2 and External Events
d. Decision Making Process
e. Associated Procedures

Key Element 1. Implementation of CRMP

The intent of the CRMP is to implement a(3) of the Maintenance Rule (10CFR50.65) with respect to on-line maintenance for risk-informed technical specifications, with the following additions/clarifications:

a. The scope of SSCs to be included in the CRMP will be all SSCs modeled in the plant PRA, in addition to all SSCs considered to be of High Safety Significance per Regulatory Guide 1.160, Rev. 2.

b. The CRMP assessment tool is PRA informed, and may be in the form of either a risk matrix, an on-line assessment, or a direct PRA assessment.

c. CRMP will be invoked as follows for:

Risk-Informed Inoperability: A risk assessment will be performed prior to entering the LCO Condition for preplanned activities. For unplanned entry into the LCO Condition, a risk assessment will be performed in an appropriate timeframe.

Additional SSC Inoperability and/or Loss of Functionality: When in the risk-informed Completion Time, if an additional high safety significant SSC becomes inoperable/non-functional, a risk assessment shall be performed in an appropriate timeframe.

d. Any applicable Tier 2 commitments apply for planned maintenance only, but will be evaluated as part of the Tier 3 assessment for unplanned occurrences.

Key Element 2. Control & Use of the CRMP Assessment Tool

a. Plant modifications and procedure changes will be monitored, assessed, and dispositioned.

- Evaluation of changes in plant configuration or PRA model features can be dispositioned by implementing PRA model changes or by the qualitative assessment of the impact of the changes on the CRMP assessment tool. This qualitative assessment recognizes that changes to the PRA take time to implement and that changes can be effectively compensated for without compromising the ability to make sound engineering judgments.

- Limitations of the CRMP assessment tool are identified and understood for each specific Completion Time extension.

b. Procedures exist for the control and application of CRMP assessment tools, including description of the process when outside the scope of the CRMP assessment tool.

Key Element 3. Level 1 Risk-Informed Assessment

The CRMP assessment tool is based on a Level 1, at power, internal events PRA model. The CRMP assessment may use any combination of quantitative and qualitative input. Quantitative assessments can include reference to a risk matrix, risk monitor, pre-existing calculations, or new PRA analyses.

a. Quantitative assessments should be performed whenever necessary for sound decision making.

b. When quantitative assessments are not necessary for sound decision making, qualitative assessments will be performed. Qualitative assessments will consider applicable, existing insights from quantitative assessments previously performed.

Key Element 4. Level 2 Issues/External Events

External events and Level 2 issues are treated qualitatively and/or quantitatively.

Guidance for implementing the CRMP is provided by plant procedures.

No Significant Hazards Consideration Determination

The proposed change described above shall be deemed to involve a significant hazards consideration if there is a positive finding in any of the following areas:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The Low Pressure Safety Injection System (LPSI) is part of the Emergency Core Cooling System subsystem. Inoperable LPSI components are not accident initiators in any accident previously evaluated. Therefore, this change does not involve an increase in the probability of an accident previously evaluated.

   The LPSI system is primarily designed to mitigate the consequences of a large Loss of Coolant Accident (LOCA). These proposed changes do not affect any of the assumptions used in the deterministic LOCA analysis. Hence the consequences of accidents previously evaluated do not change.

   In order to fully evaluate the LPSI AOT extension, probabilistic safety analysis (PSA) methods were utilized. The results of these analyses show no significant increase in the core damage frequency. As a result, there would be no significant increase in the consequences of an accident previously evaluated. These analyses are detailed in CE NPSD-995, Combustion Engineering Owners Group "Joint Applications Report for Low Pressure Safety Injection System AOT Extension."

   The Configuration Risk Management Program is an Administrative Program that assesses risk based on plant status. Adding the requirement to implement this program for Technical Specification 3.5.2 does not affect the probability or the consequences of an accident.

The proposed change allows a combination of equipment from redundant trains to be inoperable provided that at least the equivalent of single train of ECCS remains operable. Analyzed events are assumed to be initiated by the failure of plant structures, systems or components. Allowing equipment from redundant trains to constitute a single operable train does not increase the probability that a failure leading to an analyzed event will occur. The ECCS components are passive until an actuation signal is generated. This change does not increase the failure probability of the ECCS components. This change reduces the plant's susceptibility to common cause failures. As such, the probability of occurrence for a previously analyzed accident are not significantly increased.

Therefore, the proposed change will not involve a significant increase in the probability or consequences of any accident previously evaluated.

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different type of accident from any accident previously evaluated?

Response: No.

The proposed change does not change the design or configuration of the plant. No new equipment is being introduced, and installed equipment is not being operated in a new or different manner. There is no change being made to the parameters within which the plant is operated, and the setpoints at which protective or mitigative actions are initiated are unaffected by this change. No alterative in the procedures which ensure the plant remains within analyzed limits is being proposed, and no change is being made to the procedures relied upon to respond to an off-normal event. As such, no new failure modes are being introduced. The proposed change will only provide the plant some flexibility in maintaining the minimum equipment required to be operable to perform the ECCS function while in this Condition. The change does not alter assumptions made in the safety analysis and licensing basis. Therefore, the change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No

The proposed changes do not affect the limiting conditions for operation or their bases used in the deterministic analyses to establish the margin of safety. PSA evaluations were used to evaluate these changes. These evaluations demonstrate that the changes are either risk neutral or risk beneficial. These evaluations are detailed in CE NPSD-995. The margin of safety is established through equipment design, operating parameters, and the setpoints at which automatic actions are initiated. None of these are adversely impacted by the proposed change. Sufficient equipment remains available to actuate upon demand for the purpose of mitigating a transient event. The proposed change, which allows operation to continue for up to 72 hours with components inoperable in both ECCS trains, is acceptable based on the remaining ECCS components providing 100% of the required ECCS flow. The reduced potential for a self-induced plant transient resulting from unit shutdown required for a second inoperable ECCS train is minimized. Therefore, the change does not involve a significant reduction in the margin of safety, and is offset by minimizing the potential for a self induced plant transient.

Therefore, the proposed change will not involve a significant reduction in a margin of safety.

Safety and No Significant Hazards Consideration Determination

Based on the above No Significant Hazards Consideration Determination, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10CFR50.92; and (2) there is a reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and (3) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the NRC Staff's final environmental statement.