

I. OVERVIEW / SIGNATURESFacility: Waterford 3Document Reviewed: DRN 04-1244 and DRN 05-316Change/Rev.: Rev. 0System Designator(s)/Description: Various**Description of Proposed Change:**

License Amendment Request (LAR) NPF-38-249 was submitted to the NRC requesting approval of an application to revise the operating license and technical specifications to increase the Waterford Unit No. 3 maximum steady-state reactor core power level from 3441 megawatts thermal (MWt) to 3716 MWt. Amendment No. 199 to Facility Operating License No. NPF-38 and the associated safety evaluation (SE) were issued on April 15, 2005, by the Nuclear Regulatory Commission (NRC) authorizing the increase in reactor core power level. ER-W3-2001-1149-000 implements the extended power uprate (EPU) and provides the overall evaluation of the acceptability of the power uprate on all of the plant systems, structures, and components.

This 50.59 review evaluates two EPU-related document revision notices (DRN) that were not adequately addressed in the 50.59 review for ER-W3-2001-1149-000. This evaluation will complete the action identified in CR-WF3-2005-01020.

DRN 04-1244 provides EPU-related changes to the Technical Requirements Manual (TRM). The changes being evaluated are additions or changes made to the information provided in NPF-38-249 or any supplemental information provided as responses to NRC requests for additional information (RAI). This 50.59 review evaluates these specific changes:

- TRM Bases 3/4.3.1 and 3/4.3.2 change for hot leg saturation trip delay time from 2.744 seconds to 2.9515 seconds, axial shape index range trip delay time from 0.275 seconds to 1.427 seconds, integrated radial peaking factor range trip delay time from 1.521 to 1.427 seconds and for the addition of inadvertent RPC event trip delay time of 1.340 seconds. *(These changes meet Evaluation criteria as discussed in Section IV of this 50.59 Review.)*

DRN 05-316 provides EPU-related changes to Final Safety Analysis Report (FSAR) Chapter 5. These changes were previously evaluated in the 50.59 review for ER-W3-2001-1149-000 under Section II, Screenings, and Section III, 50.59 Evaluation Exemption. CR-WF3-2005-01020 identifies that quench tank sizing is being relaxed which has a potential adverse affect that must be addressed in a 50.59 evaluation. This 50.59 review evaluates the following FSAR change:

FSAR Section 5.4.11.1, Quench Tank (Pressurizer Relief Tank), is changed to revise the tank sizing basis from identifying two steam releases of 791 lbm and 441 lbm (totaling 1232 lbm) to state that a total steam release of 1232 lbm can be received and condensed, change the identification of the event that produces the maximum step load from a loss of load event to loss of load events, change a reference from Appendix 5.2A to Section 15.2.1, change the term 'step load' to 'normal discharge', change the maximum step load or maximum normal discharge steam release value from 791 lbm to less than 1000 lbm, and revise the discussion of tank sizing with respect to sequential events to a single event. *(These changes meet Evaluation criteria as discussed in Section IV of this 50.59 Review.)*

50.59 REVIEW FORM

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Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>05-016</u>)	Sections I, II, and IV required

Preparer: J. R. Schott *JR Schott* ENERCON/Design/ 05/04/05
 Name (print) / Signature / Company / Department / Date

Reviewer: R.K.Schwartzbeck *R.K. Schwartzbeck* ENERCON/Design/ 5/4/05
 Name (print) / Signature / Company / Department / Date

OSRC: J. Laque *Juan Laque* 5/6/05
 Chairman's Name (print) / Signature / Date
 [Required only for Programmatic Exclusion Screenings (see Section 5.8) and 50.59 Evaluations.] 5/4/05

II. SCREENINGS

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES", obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM ENS-LI-113. (See Section 5.2[13] for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	DRN 05-316 (Section 5.4.11.1)
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input checked="" type="checkbox"/>	<input type="checkbox"/>	DRN 04-1244 (Bases 3/4.3.1 and 3/4.3.2)
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES", perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change. If obtaining NRC approval, document the LBD change in Section II.A.5; no further 50.59 review is required. However, the change cannot be implemented until approved by the NRC. AND initiate an LBD change in accordance with NMM ENS-LI-113.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2,3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3,4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3,4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES", evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM ENS-LI-113. No further 50.59 review is required.

¹ If "YES," see Section 5.2[5]. No LBD change is required.

² If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed. Attach the 50.54 Review.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR?

Yes
 No

If "yes," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the change in Section II.A.5; no further 50.59 review is required. However, the change cannot be implemented until approved by the NRC.

3. Basis

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR and why the proposed activity does or does not involve a new test or experiment not previously described in the FSAR. Discuss other LBDs if impacted. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.

Operating License:

The Waterford Unit 3 operating license is impacted by the EPU and is revised by Amendment No. 199 to the Facility Operating License. The Operating License does not have any restrictions on activities within the scope of these DRNs. None of the license conditions contained in the Operating License are impacted by the implementation of these DRNs. No additional changes to the Operating License are required for these DRNs.

Technical Specifications:

The Waterford Unit 3 Technical Specifications are impacted by EPU and the authorized changes are provided in Amendment No. 199 to the Facility Operating License. Changes identified in DRN 04-1244 and DRN 05-316 will not adversely affect the mode of operation of any important to safety equipment or Technical Specification associated equipment. The activities will not create a system configuration or operating condition such that a Technical Specifications LCO or Surveillance Requirement is no longer adequate. The activities will not result in a condition that would bypass or invalidate automatic actuation features required to be operable by the Technical Specifications or exceed any limits specified in the Technical Specifications.

FSAR:

The FSAR changes addressed in this 50.59 Review are:

FSAR Section 5.4.11.1 is changed to revise the discussion of quench tank sizing basis by providing the total steam release of 1232 lbm rather than the steam release of two events that total 1232 lbm (741 lbm and 441 lbm), to revise the identification of the maximum step load event from loss of load event to loss of load events, to revise the reference to Appendix 5.2A to Section 15.2.1, to revise the term 'step load' to 'normal discharge' and to revise the maximum step load or maximum normal discharge from 791 lbm to less than 1000 lbm.

The current FSAR discussion of quench tank sizing identifies two events (loss of load event and rod withdrawal event as the plant returns to power), the steam release for each event (791 lbm and 441 lbm), and the loss of load event as the maximum step load. The proposed changes maintain the total tank design capacity of 1232 lbm and revise the maximum steam release to less than 1000 lbm.

These changes are evaluated further in Section IV of this 50.59 Review.

Technical Specification Bases:

The Waterford Unit 3 Technical Specifications Bases are impacted by EPU. The EPU-related changes are included in DRN 04-1243 and were evaluated by ER-W3-2001-1149-000. The DRN changes evaluated by this 50.59 review do not revise or impact any Technical Specification bases.

Technical Requirements Manual (TRM):

The core protection calculator (CPC) response time values in Table 3.3-2 were updated and new TRM Bases added by ER-W3-2001-1149-000 to clarify design bases by explicitly discussing the times that may be assumed in safety analyses for the various CPC trip functions, including the module-based trip functions. The addition of Bases 3/4.3.1 and 3/4.3.2 provides clarification by explicitly discussing times that may be assumed in safety analyses for various CPC trip functions. This basis information did not previously exist in the TRM. These TRM changes were reviewed as part of the EPU licensing submittal that was authorized by Amendment No. 199 to the Facility Operating License.

CR-WF3-2005-01020 identified that analysis IC-03-040, Waterford-3 CPC Response Time Calculation, had been revised resulting in a change to several of the CPC times provided in the licensing submittal and any subsequent correspondence with the NRC. The condition report also identified that a time response associated with an inadvertent reactor coolant pump (RCP) trip had been added to safety analyses. These times are contained in DRN 04-1244, but were not evaluated by the 50.59 review provided for ER-W3-2001-1149-000.

The specific Technical Requirements Manual changes associated with TRM Bases 3/4.3.1 and 3/4.3.2 addressed in this 50.59 Review are:

- Hot leg saturation trip delay time changed from 2.744 seconds to 2.952 seconds
- Axial shape index range trip delay time changed from 0.275 seconds to 1.427 seconds
- Integrated radial peaking factor range trip delay time changed from 1.521 seconds to 1.427 seconds
- Inadvertent RPC event trip delay time of 1.340 seconds was added

These changes are evaluated further in Section IV of this 50.59 Review.

Core Operating Limits Report:

The changes associated with these DRNs do not impact the COLR since they make no changes in the operation of the plant that are not bounded by Amendment No. 199, do not impact the type of fuel used and do not adversely impact the limits defined in the COLR. The actual core design for the first uprate cycle is being developed by ER-W3-2004-0116-000 and its link ERs, which will address COLR impacts for EPU.

New Test or Experiment

This is a document change that does not involve any tests or experiments.

Other Impacts

No other LBDs are impacted by the changes proposed in ER-W3-2001-1149-001.

4. References

Discuss the methodology for performing LBD searches. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.5.1[5](d) of LI-101. **NOTE: Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.**

LBDs/Documents reviewed via keyword search:

FSAR Sections: 4.3, 4.3A, 7.1, 7.2, 7.7, 8.2, 10.4, 15.0, 15.2, 15.4, 15.6 and 15.9

Technical Specification Sections/Bases: 2.0, 3/4.2 and 3/4.3

TRM Sections/Bases: 3/4.2 and 3/4.3

COLR Sections: 3.2.4 and 3.2.7

Keywords:

quench, "quench tank", "pressurizer relief tank", "relief tank", 791, "791 lbm", 441, "441 lbm", "step load", "steam release", "loss of load event" and "loss of load"

"hot leg saturation", axial, "axial shape", "axial shape index", axial shape index range", ASI, "integrated radial peaking", "inadvertent RPC", "inadvertent reactor", "power cutback", "trip delay time", "trip delay", "trip function", "response time", "core protection calculator", CPC, 2.744, 0.275, 1.521, 744, 275 and 521

LBDs/Documents reviewed manually:

FSAR Sections: 4.3.2.2.2, 4.3.2.2.3, 4.3A.5, 7.2.1, 7.2.2, 7.7.1.4, 7.7.1.5, 7.7.1.9, 15.0.2, 15.2.2, 15.4.1.2, 15.4.1.3, 15.4.1.7, 15.6.3.1, 15.6.3.2 and 15.9.1.1

FSAR Tables: 15.0-3, 15.0-4, 15.6-1 and 15.6-24

Technical Specification Sections/Bases: 2.0, 3/4.2 and 3/4.3

TRM Sections/Bases: 3/4.2 and 3/4.3

5. Is the validity of this Review dependent on any other change?

Yes

No

If "YES", list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure ENS-EV-115, "Environmental Evaluations," and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed Change being evaluated:

- | | <u>Yes</u> | <u>No</u> | |
|-----|--------------------------|-------------------------------------|--|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)? |
| 2. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)? |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve dredging activities in a lake, river, pond, or stream? |
| 4. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the amount of thermal heat being discharged to the river or lake? |
| 5. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the concentration or quantity of chemicals being discharged to the river, lake, or air? |
| 6. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharge any chemicals new or different from that previously discharged? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures? |
| 8. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of the cooling tower that will change water or air flow characteristics? |
| 9. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge? |
| 10. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)? ¹ |
| 11. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)? ¹ |
| 12. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or use of equipment that will result in a new or additional air emission discharge? |
| 13. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or modification of a stationary or mobile tank? |
| 14. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the use or storage of oils or chemicals that could be directly released into the environment? |
| 15. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater? |

¹ See NMM Procedure ENS-EV-117, "Air Emissions Management Program," for guidance in answering this question.

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

- | | <u>Yes</u> | <u>No</u> | |
|-----|--------------------------|-------------------------------------|--|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Add, delete, modify, or otherwise affect Security department responsibilities (e.g., including fire brigade, fire watch, and confined space rescue operations)? |
| 2. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a breach to any security barrier(s) (e.g., HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)? |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Cause materials or equipment to be placed or installed within the Security Isolation Zone? |
| 4. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities? |
| 5. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the intrusion detection systems (e.g., E-fields, microwave, fiber optics)? |
| 6. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the operation or field of view of the security cameras? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment? |
| 8. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station? |
| 9. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways? |
| 10. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the facility's telephone or security radio systems? |

Documentation for accepting any "yes" statement for these reviews will be attached to this 50.59 Review or referenced below.

D. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) SCREENING

(NOTE: This section is not applicable to Waterford 3 and may be removed from 50.59 Reviews performed for Waterford 3 proposed activities.)

If any of the following questions is answered "yes," an ISFSI Review must be performed in accordance with NMM Procedure ENS-LI-112, "72.48 Review," and attached to this Review.

Will the proposed Change being evaluated:

- | | <u>Yes</u> | <u>No</u> | |
|-----|--------------------------|-------------------------------------|--|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Any activity that directly impacts spent fuel cask storage or loading operations? |
| 2. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the Independent Spent Fuel Storage Installation (ISFSI) including the concrete pad, security fence, and lighting? |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the on-site transport equipment or path from the Fuel Building to the ISFSI? |
| 4. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the design or operation of the Fuel Building fuel bridge including setpoints and limit switches? |
| 5. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building or Control Room(s) radiation monitoring? |
| 6. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building pools including pool levels, cask pool gates, cooling water sources, and water chemistry? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building handling equipment (e.g., bridges and cask cranes, structures, load paths, lighting, auxiliary services, etc)? |
| 8. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building electrical power? |
| 9. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building ventilation? |
| 10. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the ISFSI security? |
| 11. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to off-site radiological release projections from non-ISFSI sources? |
| 12. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to spent fuel characteristics? |
| 13. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Redefine/change heavy load pathways? |
| 14. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Fire and explosion protection near or in the on-site transport paths or near the ISFSI? |
| 15. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the loading bay or supporting components? |
| 16. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | New structures near the ISFSI? |
| 17. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modifications to any plant systems that support dry fuel storage activities? |
| 18. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the nitrogen supply, service air, demineralized water or borated water system in the Fuel Building? |

III. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in Section II.A.1.

A. Check the applicable boxes below. If any of the boxes are checked, clearly document the basis in Section III.B, below. If none of the boxes are appropriate, perform a 50.59 Evaluation in accordance with Section IV. Provide supporting documentation or references as appropriate.

- The proposed activity meets all of the following criteria regarding design function per Section 5.5[1](a):

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of evaluation that demonstrates intended design function(s) of an SSC described in the FSAR will be accomplished.

- An approved, valid 50.59 Review(s) covering associated aspects of the proposed activity already exists per Section 5.5[1](b). Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.
- The NRC has approved the proposed activity or portions thereof per Section 5.5[1](c).
Reference: _____

B. Basis

Provide a clear, concise basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions.

IV. 50.59 EVALUATION

License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. Yes No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? Yes No

BASIS:

The FSAR was reviewed and the quench tank is not an accident initiator for any accident evaluated in the FSAR, nor does it impact any accident initiator.

The FSAR was reviewed and the calculated safety analysis core protection calculator (CPC) trip delay times are not accident initiators for any accident evaluated in the FSAR, nor do they impact any accident initiator.

Based on the discussion above, the frequency of occurrence of an accident previously evaluated in the FSAR will not be increased as a result of the identified changes to the quench tank capacity requirement and the calculated safety analysis CPC trip delay times.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? Yes No

BASIS:

The two American Society of Mechanical Engineers (ASME) code safety valves connected to the pressurizer provide overpressure protection for the reactor coolant system pressure boundary and discharge to the quench tank. FSAR Section 5.4.11.3 states that the quench tank and associated blowdown system are sized to ensure that the pressurizer safety valve backpressure does not exceed 500 psig. No physical change to the quench tank or the associated blowdown system is being made and there is no impact on the safety valve backpressure limit or any implicit interface between the quench tank and any important to safety SSC.

Regulatory Guide 1.70 and NUREG-0800 Section 5.4.11 identify that quench tank sizing should be adequate to handle a pressurizer steam discharge associated with the maximum step load. The maximum step load and associated steam discharge should be identified. The FSAR Section 5.4.11 discussion of quench tank sizing identifies two events (loss of load event and rod withdrawal event as the plant returns to power), the steam release for each of these events, and a loss of load event as the maximum step load.

The loss of load and rod withdrawal at power events were analyzed for EPU. The loss of load events (including loss of condenser vacuum and additional events as defined in FSAR Section 15.2) analyses indicate that the maximum steam discharge will be less than 1000 lbm. The rod withdrawal at power analysis concludes that the safeties will not lift and there is no steam discharge to the quench tank.

The proposed FSAR change will replace the quench tank sizing discussion of two events and their associated steam releases with a discussion identifying a total tank design capacity basis of 1232 lbm that is the sum of the original two separate releases and will identify that the maximum normal discharge that the quench tank must withstand is less than 1000 lbm. This is consistent with the standard review plan and the original design requirements for the quench tank.

The calculated safety analysis CPC trip delay times are used as inputs to FSAR Chapter 15 event analyses whose purpose is to determine if the specified acceptable fuel design limits (SAFDL) are violated. The change in the trip delay times will not degrade the performance of any safety system assumed to function in the safety analysis, nor will these changes decrease the reliability of safety systems or require that any systems be operated outside their design limits.

Based on the discussions above, the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the FSAR will not be increased as a result of the identified changes to the quench tank capacity requirement and the calculated safety analysis CPC trip delay times.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? Yes No

BASIS:

The FSAR was reviewed and no accidents currently evaluated in the FSAR were identified that could have the associated consequences impacted by the change in the maximum steam discharge to the quench tank. The FSAR discussion in section 5.4.11 states that the quench tank is non-safety, does not impact safe shutdown and does not jeopardize the safety of the public.

The FSAR was reviewed and several accidents currently evaluated in the FSAR were identified that could have the associated consequences impacted by the change in the calculated safety analysis CPC trip delay times. Each of these accidents credit one of the calculated safety analysis CPC trip delay times in the event analysis sequence. The evaluation of the impact of the change in the calculated safety analysis CPC trip delay times on the analysis results determined that the results are not adversely impacted by the changes; therefore, there is no impact on the consequences of these accidents (events).

Based on the discussions above, the consequences of an accident previously evaluated in the FSAR will not be increased as a result of the identified changes to the quench tank capacity requirement and the calculated safety analysis CPC trip delay times.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? Yes No

BASIS:

The change in the quench tank design sizing requirement and the changes to the calculated safety analysis CPC trip delay times require no equipment modifications. The changes do not impact any SSC important to safety and do not alter any function or duty of equipment important to safety. No change in assumptions concerning equipment availability or failure modes has been made.

Based on the discussion above, the consequences of a malfunction of a SSC important to safety previously evaluated in the FSAR is not increased by the changes associated with the quench tank and the CPC trip delay times.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? Yes No

BASIS:

The change in the quench tank design sizing basis and the changes to the calculated safety analysis CPC trip delay times do not introduce an accident initiator or potential single failure not already considered in the FSAR. No new system interactions or interconnections are required. The design, function and operation of equipment are not changed, no new equipment is required to be installed and no there are no changes in failure modes.

Based on the discussion above, changes associated with the quench tank and the CPC trip delay times do not create a possibility for an accident of a different type than any previously evaluated in the FSAR.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? Yes No

BASIS:

No equipment modifications are required to support changes to the quench tank design sizing requirement and the calculated safety analysis CPC trip delay times. SSCs important to safety are not impacted and equipment functions will not change. No new failure modes are introduced by any of these changes.

Based on the discussion above, the changes associated with the quench tank and the CPC trip delay times do not create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? Yes
 No

BASIS:

The quench tank is not a fission product barrier. The tank is connected to the discharge of two ASME code safety valves connected to the pressurizer that provide overpressure protection for the reactor coolant system pressure boundary. Quench tank failure does not affect the integrity of the boundary.

The calculated safety analysis CPC trip delay times may be used as inputs to FSAR Chapter 15 event analyses whose purpose is to determine if the SAFDLs are violated. The analyses that use the time responses and the impact of the changes are identified below.

The analyses for the letdown line break and the steam generator tube rupture (SGTR) use the hot leg saturation trip in the event sequence. The letdown line break analysis uses a trip response time of 3.0 seconds that envelopes both times. The SGTR analysis results are not impacted by a change of several seconds in the trip time as parameters are varying slowly. The trip represents the transition from steaming to the condenser to steaming to the atmosphere. The results of the letdown line break and SGTR analyses do not result in a structural failure of the fuel.

The inadvertent reactor power cutback (RPC) event trip delay time is the time, following expiration of the RPC timers, that the CPCs will be calculating departure from nucleate boiling ratio (DNBR) with the new core power distribution information. The transient analysis demonstrates that following a RPC with a failure of the turbine to runback SAFDL violation does not occur.

The axial shape index range trip delay time and the integrated radial peaking factor range trip delay time are present to ensure that the DNBR correlation stays within the range of applicability. During actual transients the radial peak does not approach the range protected by the setpoints.

Based on the discussion above, the changes associated with the quench tank and the CPC trip delay times do not result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? Yes
 No

BASIS:

No new methodologies were required. No new or revised analyses were generated for the quench tank sizing; the existing analysis was determined to bound the EPU operating conditions. The CPC delay times were determined by analysis IC-03-040 and used approved analysis methodology under an approved quality assurance program.

Based on the discussion above, the changes associated with the quench tank and the CPC trip delay times do not result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses.

If any of the above questions is checked "YES", obtain NRC approval prior to implementing the change by initiating a change to the Operating License in accordance with NMM Procedure ENS-LI-113.