

I. OVERVIEW / SIGNATURES

Facility: Waterford 3

Document Reviewed: ER-W3-2005-0130-000 / TAR for CW-111 B Change/Rev.: 0

System Designator(s)/Description: Circulating Water (CW)

Description of Proposed Change:

During RF-13, CW-111B will be removed for refurbishment to address valve seat leakage. While the valve is removed for rework two, 2" thick steel blind flanges will be installed (stacked) in place of the valve to isolate the piping for the Circulating Water (CW) supply to Condenser Waterbox B2. This will allow the system to be placed back in service. The operation of the Circulating Water system is necessary to provide a liquid waste effluent flowpath / dilution for the yard oil separator discharge. The blind flange assembly will be equipped with a valve to aid in the CW system venting and draining.

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>05-015</u>)	Sections I, II, and IV required

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Name (print) / Signature / Company / Department / Date

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Name (print) / Signature / Company / Department / Date

OSRC: *Joel P. Rachal* / *Joel P. Rachal* / 4/25/05
Chairman's Name (print) / Signature / Date
[Required only for Programmatic Exclusion Screenings and 50.59 Evaluations.]

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"/>	<i>Section 10.4.5.3; FSAR Figure 10.4-1 Sh.2 (by reference)</i>
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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 / Technical Specifications

The main condenser, Circulating Water system, and waterboxes are not the subject of any TS requirement. The Technical Requirements Manual has requirements for monitoring Circulating Water Chemistry but does not provide any details about the piping configuration. Therefore, this change has no impact on the Operating License/Technical Specifications.

FSAR

The FSAR provides information about the Circulating Water system (CWS) and the water boxes, specifically stating in 10.4.5.2 that two 84 in. steel lines are provided per condenser shell and that isolation valves are provided upstream and downstream of specific equipment to enable maintenance. CW system piping is constructed of carbon steel and reinforced concrete.

FSAR Section 10.4.5.3 states that "all circulating water components are designed for a pressure of 50 psig" and are hydrostatically tested to 75 psig and that the maximum pressure in the CWS for any operational transient event is 35.5 psig. The subject ER will install two 2" thick, steel blind flanges (stacked) to isolate the piping when valve CW-111B is removed for maintenance. Using the formula from ASME Section VIII, Division I, Paragraph UG-34 for Unstayed Flat heads and Covers this configuration of double flanges is acceptable up to 43.6 psig. This pressure is above the maximum operational transient event of 35.5 psig; however it does not meet the design pressure of 50 psig as described in the FSAR.

FSAR Section 10.4.5.3 states the CW pump discharge valves are motor operated butterfly valves and that specified procedure is observed for pump startup and shutdown to preclude the possibility of excessive water hammer therefore preserving the system design conditions from transients.

FSAR Section 10.4.5.3 also discusses the potential consequences of a failure of the CWS piping in the turbine building. It states that in the event a failure occurs to a CWS component inside the Turbine Building, there is a potential of discharging CW into the Turbine Building at a maximum rate of 1,320,000 gpm (all four pumps at run out). The subject temporary ER will be implemented during Refuel 13 in plant modes 5 and/or 6 when four CW pumps would not be in service.

The subject change is not a test or experiment as defined in 10CFR50.59.

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: Keywords:

**NUREG 787 with Supplement 6, LICENSE
AMENDMENT NO. 183, FSAR 10.4.5, 10.4.5.2,
9.3.3.2.2.5, 11.2, 9.5, 10.4.1.2, 10.4.1.3, 2.4.1.1,
1.2.2, 9.2.5, 15.2.1.3.1**

**"circulating water", "waterbox", "CW-111", "CW-
111B", "CW111", "CW-111B"**

LBDs/Documents reviewed manually:

FSAR 10.4.5, 9.3.3.2.2.5, 10.4.1.2, 10.4.1.3,

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.

(Insert basis discussion.)

IV. 50.59 EVALUATION

License Amendment Determination

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

Does the proposed Change:

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

BASIS:

The loss of the Circulating Water System is listed as the initiator for a loss of condenser vacuum (a moderate frequency event) per FSAR section 15.2.1.3. However this modification will only be installed in Refuel 13 during plant modes 5 and/or 6 when the condenser is not in service (i.e. not under a vacuum). Also the temporary configuration which includes the blind flanges, vent / drain valve, pipe and fittings are qualified to provide satisfactory pressure integrity (43.6 psig) of the system above the maximum postulated operational transient event of 35.5 psig. the vent / drain valve, pipe and fittings to be used on the blind flange are acceptable for the Therefore there will be no increase in the frequency of occurrence of an accident previously evaluated in the FSAR.

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

BASIS:

FSAR section 10.4.5.3 postulates a failure of the CW system piping and potentially discharging circulating water into the Turbine Building at a maximum rate of 1,320,000 gpm (all four pumps at run out). This modification will install a blank flange in place of a permanently installed component in the CW system to maintain flow through the system. This component is a passive component whose only failure mode would be to rupture. Though the temporary alteration will not meet the design pressure of 50 psig of the CW system, it will provide satisfactory pressure integrity (43.6 psig) of the system above the maximum postulated operational transient event of 35.5 psig. In addition, monitoring of Circulating Water operating parameters shows that 46.3 psig provides adequate margin from the normal operating condition to prevent malfunction. Therefore there is no increase in the likelihood of occurrence of a malfunction due to the temporary alteration envelopes the worst case analyzed event.

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

BASIS:

FSAR section 10.4.5.3 states that "the CW system is normally used to supply cooling water to the main condenser to remove residual heat from the Reactor Coolant System during the initial cooling period of plant shutdown when the main steam is bypassed to the condenser. However, if the CW system fails to supply cooling water due to failure of the circulating water pumps or the circulating water piping, the bypassed main steam cannot be condensed in the main condenser. This is considered a condenser failure and safe shutdown of the reactor in such an event is discussed in Subsection 10.4.1." FSAR section 10.4.1.3 states that the reactor can be safely shutdown using the steam safety valves and atmospheric dump valves. In addition, section 10.4.5.3 evaluates the consequences of flooding from the circulating water system and determines that this event would not result in the loss of safety related equipment. Therefore this temporary alteration will not have any impact to any of the consequences of an accident previously evaluated in the FSAR.

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:

FSAR section 10.4.5.3 states that the failure of the CW system piping can potentially discharge circulating water into the Turbine Building at a maximum rate of 1,320,000 gpm (all four pumps at run out). This is the worst event postulated for the CW system in the FSAR.

This temporary modification does not alter the CW system such that it could result in a larger postulated break size or a larger discharge rate. The proposed temporary alteration will be implemented during Refuel 13 plant modes 5 and/or 6. The consequences of the break on heat removal during shutdown are bounded by the loss of the condenser, which is already postulated in section 10.4.1.3.

Therefore this temporary alteration does not result in an increase in consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR.

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

BASIS:

All work will be limited to the +15 elevation of the turbine building and within the boundary of the existing circulating water system. There will be no new system interfaces created by this temporary change. The flange being installed is a passive component whose only failure mode would be to rupture. The consequences of this event would result in flooding from the circulating water system and a loss of condenser heat removal. The consequences of these events have been previously evaluated and are bounded by the safety evaluations in the FSAR section 10.4.5.3 and 10.4.1.3. Therefore there will be no 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:

This change will not create a possibility for a malfunction of any SSC with a different result than any previously evaluated in the FSAR. The flange being installed is a passive component whose only failure mode would be to rupture. The consequences of this event would result in flooding from the circulating water system and a loss of condenser heat removal. The consequences of these accidents have been previously evaluated and are bounded by the safety evaluations in the FSAR section 10.4.5.3 and 10.4.1.3.

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 CW system is not a fission product barrier. The FSAR has evaluated the consequences of a loss of CW and has determined that this will have no effect on the capability to safely shutdown the reactor. Therefore there is no effect on the design basis limit of any fission product barrier as described in the FSAR. Therefore there is no impact.

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:

The proposed change is only temporary in order to perform maintenance on a non-safety CW valve. The system will be restored per design and as described in the FSAR following the maintenance activity and prior to plant startup. Therefore the proposed temporary change will not have any affect on any method of evaluation as described in the FSAR.

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.
