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W3F1-2008-0063

September 18, 2008

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

Subject: License Amendment Request NPF-38-278
To Modify Technical Specification 3/4.9.6, Refueling Machine
Waterford Steam Electric Station, Unit 3 (Waterford 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 the following amendment for Waterford 3 SES. The proposed amendment revises Action Statements 'a' and 'b' of Technical Specification 3/4.9.6, Refueling Machine to clarify acceptability of placing a suspended fuel assembly or CEA within the reactor vessel in a safe condition while restoring the refueling machine operability. Associated changes to the Technical Specification Bases 3/4.9.6, Refueling Machine are provided herein for information only.

Attachment 1 provides an analysis of the proposed Technical Specification change. Attachment 2 provides a mark-up of the proposed changed page. Attachment 3 provides a mark-up of changes to the associated Technical Specification Bases Page for information only.

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 this change involves no significant hazards. The bases for these determinations are included in the attached submittal.

There are no new regulatory commitments contained in this submittal.

Entergy requests approval of the proposed amendment by September 10, 2009, in support of the Fall 2009 refueling outage (RF16). Once approved, the amendment shall be implemented prior to the start of the outage fuel movement. Although this request is neither exigent nor emergency, your prompt review is requested.

A001
NRR

If you have any questions or require additional information, please contact Robert J. Murillo, Manager, Licensing at (504) 739-6715.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 18, 2008.

Sincerely,

for K. Walsh

KTW/OPP/ssf

Attachments:
1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (mark-up)
3. Changes to Technical Specification Bases Pages – For Information Only

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Attachment 1

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Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

This is a request to amend the Operating License for Waterford 3.

The proposed amendment revises Action Statements 'a' and 'b' of Technical Specification 3/4.9.6, Refueling Machine to clarify that it is acceptable to place a suspended fuel assembly or CEA within the reactor vessel to place the load in a safe condition while restoring refueling machine operability.

Current wording of Technical Specification 3.9.6 ACTION statements does not clearly provide the refueling staff the latitude to move a suspended fuel assembly or CEA once movement has been suspended.

2.0 PROPOSED CHANGES

The proposed Technical Specification changes, which are submitted for NRC review and approval, are provided in Attachment 2. A markup of the Technical Specification Bases is included in Attachment 3 for information only.

Technical Specification 3.9.6 ACTIONs 'a' and 'b' are revised as follows:

a. With the above requirements for the fuel mast not satisfied, suspend use of the fuel mast from operations involving pre-planned movement of fuel assemblies and place the refueling machine load (fuel assembly) in a safe condition.

b. With the above requirements for the CEA mast not satisfied, suspend use of the CEA mast from operations involving the pre-planned movement of CEAs and place the refueling machine load (CEA) in a safe condition.

3.0 BACKGROUND

During refueling outages, if the refueling machine becomes inoperable while moving a fuel assembly or CEA within the reactor vessel, the current refueling machine Technical Specification 3.9.6 ACTION statements 'a' and 'b' require suspending use of the fuel mast or CEA mast from operations involving the movement of fuel assemblies and CEAs. When applied as written, the fuel assembly or CEA is left hanging within the reactor vessel with no allowance for placing the fuel assembly or CEA in a safe condition. The current specification wording furthermore impacts the ability of the refueling team to recover from conditions such as a failed refueling machine computer that requires raising the suspended fuel assembly or CEA to reboot the computer and reestablish operability of the refueling machine, thus placing the load back in a safe condition.

4.0 TECHNICAL ANALYSIS

The existing Bases for Technical Specification 3/4.9.6, Refueling Machine states that, "The OPERABILITY requirements for the refueling machine ensure that: (1) the refueling machine will be used for movement of CEAs and fuel assemblies, (2) each hoist has sufficient load capacity to lift a CEA or fuel assembly, and (3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently

engaged during lifting operations."

The proposed changes to the Technical Specification are in keeping with the existing Bases of the Technical Specification. The changes will require that the load (fuel assembly or CEA) be placed in a safe condition by raising or lowering the load based on safety considerations. The safety considerations will be prescribed in an approved plant procedure. The safety considerations include assessing whether or not the load is physically entangled or engaged with an adjacent fuel assembly or CEA or other reactor internals, and assessing appropriate actions to preclude damage to reactor internals or other fuel assemblies or CEAs. Safety considerations also include manually monitoring load while raising or lowering the load with automatic overload cut off disabled, and assessing the need for containment closure.

The refueling machine is dual masted, with fuel and CEA handling masts. The refueling machine moves fuel assemblies into and out of the core and between the core and the transfer equipment. Mechanical stops and positive locks have been provided to prevent damage to or dropping of the fuel assemblies. In the design of the refueling machine, positive locking between the grapple and the fuel assembly is provided by the engagement of the actuator arm in vertical channels in the hoist assembly. Relative rotational movement and uncoupling are not possible, even with inadvertent initiation of an uncoupling signal to the actuator assembly. Therefore, failure of an electrical interlock will not result in the dropping of a fuel assembly.

The refueling machine has several interlocks, which include the following:

a. A hoist interlock that interrupts hoisting of a fuel assembly or a CEA if the load increased above the overload setpoint. This hoist interlock is a Technical Specification required interlock. The hoisting load is visually displayed so that the operator can manually terminate the withdrawal operation if an overload occurs and the hoist continues to operate.

b. A hoist interlock that interrupts hoisting of a fuel assembly or a CEA when the correct vertical position is reached. A mechanical up-stop has also been provided to physically restrain the hoisting of a fuel assembly or a CEA above the elevation which would result in less than the minimum shielding water coverage.

c. A hoist interlock that interrupts insertion of a fuel assembly or CEA if the load decreases below the underload setpoint. The load is visually displayed so the operator can manually terminate the insertion operation if an underload occurs.

d. A hoist interlock that interrupts lowering of the hoist under a no-load condition when installing a fuel bundle or a CEA. The weighing system interlock is backed up by an independent slack cable switch which terminates lowering under a no-load condition.

e. A hoist interlock that denies hoisting movement during translation of the bridge and/or trolley.

f. A translation interlock that denies translation of the bridge and trolley while the fuel or CEA hoist is operating.

g. A translation interlock that denies motion of the bridge and trolley with the spreader extended.

h. A mast anticollision interlock that stops translation of the bridge and/or trolley when the collision ring on either mast is contacted and deflected.

i. A hoist speed interlock that provides restriction on maximum hoisting speed.

The above listed interlocks do not operate when the refueling machine computer fails. In order to reestablish these interlocks after a computer failure, the refueling machine computer has to be rebooted. In order to reboot the computer, the refueling machine hoist has to be raised to the up limit. To accomplish this, the refueling machine operator uses a key override feature that also bypasses the Technical Specification overload cut off protection, and moves the hoist in slow speed to the up limit. During the refueling operator use of key override, the load cell is still functional and he/she monitors a visual indication of weight of the load. Therefore, during the slow and careful raising of the hoist to reset the refueling machine computer, the refueling machine operator would manually perform the function of the Technical Specification overload cut off. If the operator notices the load increasing beyond the expected weight of the load attached (fuel assembly / CEA), it would be recognized as an indication that there is some kind of unexpected resistance that needs to be assessed. At that point the operator would stop raising the mast and an assessment of the condition would be performed in accordance with an approved procedure. Therefore, the function of the Technical Specification overload cut off would be compensated for by the refueling machine operator during the time that the refueling machine computer is being rebooted.

5.0 REGULATORY SAFETY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

This License Amendment Request proposes revising the Waterford 3 refueling machine Technical Specification to clarify acceptability of placing a suspended load within the reactor vessel in a safe condition with an inoperable refueling machine. GDC 62, "Prevention of criticality in fuel storage and handling" is not impacted by the amendment since the changes do not impact geometric configuration of the fuel assemblies in the core. Also, the proposed changes do not affect refueling machine minimum capacity criteria provided in BTP ASB 9-1. The amendment request was reviewed for acceptability with respects to Information Notice 97-78, "Crediting of Operator Actions In Place of Automatic Actions and Modifications of Operator Actions, Including Response Times." Manually monitoring load while raising a fuel assembly or CEA, with overload cut off disabled, to place it in a safe condition does not involve manually actuating a safety system function or response times thereof.

5.2 No Significant Hazards Consideration

Entergy Operations has evaluated whether or not a significant hazards consideration is involved with the proposed amendments by focusing on the three standards set forth in 10 CFR 50.92, "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 change clarifies an acceptable approach to recovering from an inoperable refueling machine, such as a computer failure, wherein it becomes necessary to raise the fuel assembly or CEA without automatic overload cut off protection in service to place the load in a safe condition. In this scenario, the refueling machine operator compensates for the lack of availability of an automatic overload cut off during raising the hoist using the key override feature to reset the refueling machine computer. Inspection for and assessment of entanglement of a fuel assembly or CEA with reactor internals or other fuel assemblies or CEAs and taking evaluated steps to free the same from entanglement precludes the potential for a fuel handling accident. These actions are to minimize the potential for fuel assembly damage so that the worst case fuel handling accident (fuel assembly drop) remains bounding. Therefore, there is no increase in the probability or consequences of the worst case 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 Technical Specification required overload cut off interlock is bypassed when raising a fuel assembly in key override mode. However, in the applicable case of raising the refueling machine hoist to the up limit with a fuel assembly or CEA attached, the refuel machine operator would manually compensate for the lack of availability of the automatic overload cut off. The load cell remains functional with a failed refueling machine computer and the operator can visually monitor changes in load while slowly and carefully raising the hoist to the up limit to reset the computer. The manual monitoring of load is not impacted by the criteria in NRC Information Notice 97-78 associated with crediting manual operator actions since the actions are not associated with actuating safety systems or mitigating an accident. The proposed changes provide essential clarification that allows a refuel operation to recover from a condition involving an inoperable refueling machine with a fuel assembly or CEA suspended in the reactor vessel. No new accident initiators are introduced by this change. The overload cut off will be manually compensated for by the refueling machine operator while resetting the computer to reestablish the automatic overload cut off interlock. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

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

Response: No.

The revised Technical Specification ACTION statement changes do not involve a significant reduction in the margin of safety. The changes provide an acceptable approach to recovery from an inoperable Refueling Machine. The changes clarify an already existing success path to restoring the refueling machine to service. The overload cut off will be manually compensated for by the refueling machine operator while raising or lowering the load. As such, the change does not impact the margin to safety. The changes ensure adherence to the original Bases to protect the core internals and pressure vessel from excessive lifting force in the event they are inadvertently engaged during lifting with the refueling machine inoperable (e.g., failed computer).

5.3 Environmental Consideration

A review has determined that the proposed amendment would clarify an acceptable course of action after suspending fuel assembly or CEA mast movement with a fuel assembly or CEA suspended in the reactor vessel. The proposed changes do not involve (i) significant hazards consideration, (ii) any changes in the types or any increase in the amounts of any effluent that may be released offsite, or (iii) significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the proposed amendment.

6.0 PRECEDENCE

Limerick Unit 1 Technical Specification 3.9.6 ACTION states, "With the requirements for refueling platform OPERABILITY not satisfied, suspend use of any inoperable refueling platform equipment from operations involving the handling of control rods and fuel assemblies within the reactor pressure vessel after placing the load in a safe condition."

Also, Waterford 3 Technical Specification 3.9.7 ACTION 'a' allows placing the fuel handling machine crane load in a safe position with the spent fuel handling machine inoperable.

7.0 REFERENCES

None.

Attachment 2

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Proposed Technical Specification Changes (mark-up)

REFUELING OPERATIONS

3/4.9.6 REFUELING MACHINE

LIMITING CONDITION FOR OPERATION

3.9.6 The refueling machine shall be used for movement of CEAs or fuel assemblies and shall be OPERABLE with:

a. A minimum capacity of 3200 pounds, and an overload cut off limit of less than or equal to 3350 pounds for the fuel mast.

b. A minimum capacity of 1600 pounds and an overload cut off limit of less than or equal to 1700 pounds for the CEA mast.

APPLICABILITY: During movement of CEAs or fuel assemblies within the reactor pressure vessel.

ACTION:

a. With the above requirements for the fuel mast not satisfied, suspend use of the fuel mast from operations involving ~~the movement of fuel assemblies.~~ — Replace with insert # 1

b. With the above requirements for the CEA mast not satisfied, suspend use of the CEA mast from operations involving ~~the movement of CEAs.~~ — Replace with Insert # 2

SURVEILLANCE REQUIREMENTS

4.9.6.1 The fuel mast used for movement of fuel assemblies shall be demonstrated OPERABLE within 72 hours prior to the start of such operations by performing a load test of at least 3200 pounds and demonstrating an automatic load cut off when the fuel mast load exceeds 3350 pounds.

4.9.6.2 The CEA mast used for movement of CEAs shall be demonstrated OPERABLE within 72 hours prior to the start of such operations by performing a load test of at least 1600 pounds and demonstrating an automatic load cut off when the CEA mast exceeds 1700 pounds.

Insert # 1:

pre-planned movement of fuel assemblies, and place the refueling machine load (fuel assembly) in a safe condition.

Insert # 2:

pre-planned movement of CEAs, and place the refueling machine load (CEA) in a safe condition.

Attachment 3

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Changes to Technical Specification Bases Pages – For Information Only

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS (Continued)

→ (DRN 03-178, Ch. 21)
closure" rather than " containment OPERABILITY." Containment closure means that all potential escape paths are closed or capable of being closed. Since there is no potential for containment pressurization, the Appendix J leakage criteria and tests are not required.

During CORE ALTERATIONS or movement of irradiated fuel within the containment, the escape of radioactivity to the environment is minimized when the LCO requirements are met.

The equipment door, personnel airlock doors, or penetrations may be open during movement of irradiated fuel in the containment and during CORE ALTERATIONS provided the equipment door, a minimum of one door in the airlock, and penetrations are capable of being closed by an isolation valve, blind flange or manual valve, or capable of being closed on a containment purge isolation signal (CPIS) initiated by the required radiation monitors in the event of a fuel handling accident. An OPERABLE containment purge isolation valve consists of a containment purge valve capable of isolating on manual initiation and on a containment purge isolation test signal from each of the required radiation monitoring instrumentation channels. (Note that Technical Specifications 3/4.3.3, Radiation Monitoring, and 3/4.9.9, Containment Purge Isolation System, are also applicable.) Should a fuel handling accident occur inside containment, the equipment door, a minimum of one personnel airlock door and the open penetrations will be closed. For closure, the equipment door will be held in place by a minimum of four symmetrically-placed bolts. The containment purge lines are automatically closed upon a CPIS if the fuel handling accident releases activity above prescribed levels. Closure of at least on of the containment purge isolation valves is sufficient to provide closure of the penetration. Containment penetrations that provide direct access from containment atmosphere to outside atmosphere must be isolated on at least one side. Isolation may be achieved by an OPERABLE automatic isolation valve, or by a manual isolation valve or blind flange.
← (DRN 03-178, Ch. 21)

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during CORE ALTERATIONS.

3/4.9.6 REFUELING MACHINE

The OPERABILITY requirements for the refueling machine ensure that: (1) the refueling machine will be used for movement of CEAs and fuel assemblies, (2) each hoist has sufficient load capacity to lift a CEA or fuel assembly, and (3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations. Insert #3

Insert # 3

The Technical Specification Actions 'a.' and 'b.' statements allow the movement of a fuel assembly or CEA to a safe condition using administrative controls in the event of a refueling machine failure.