Phyllis

From: Clark, Phyllis
Sent: Friday, December 02, 2016 7:45 AM
To: mchisum@entergy.com
Cc: jjarrel@entergy.com; dfrey@entergy.com; lmurr91@entergy.com; GYOUNG4 @entergy.com; Dlach@entergy.com; ataylo1@entergy.com; aharris@entergy.com; Milster, Leia Elizabeth; Ramirez, Frances; Speer, Chris; Wittick, Brian; Morey, Dennis; RidsNrrDlr Resource; RidsNrrDlrRpb1 Resource; RidsNrrDlrRerb Resource; RidsNrrDlrRarb Resource; RidsNrrDlrRasb Resource; RidsNrrDlrRsrg Resource; RidsNrrPMWaterford Resource; RidsRgn4MailCenter Resource; Folk, Kevin; Keegan, Elaine; Buford, Angela; Prinaris, Andrew; Wong, Albert; Huynh, Alan; Sweat, Tarico; Medoff, James; Gavula, James; Lopez, Juan; Cuadrado de Jesus, Samuel; Min, Seung; Obadina, Sarah; Sadollah, Mohammad; Rogers, Billy; Brittner, Donald; Fu, Bart; Allik, Brian; Lehman, Bryce; Gardner, William; Thomas, George; Mink, Aaron; Doutt, Clifford; Holston, William; Yoo, Mark; Pulvirenti, April; McIntyre, David; Burnell, Scott; Moreno, Angel; Kennedy, Kriss; Scott, Catherine; Yoder, Matthew; James, Lois; Chazell, Russell
Subject: REF: WATERFORD STEAM ELECTRIC STATION, UNIT 3, LICENSE RENEWAL APPLICATION – RAI SET 9 (CAC NO. MF7492)
Attachments: Waterford 3 LRA Draft RAI Set 9 (Final 12 1 2016).docx

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

Mr. Michael R. Chisum
Site Vice President

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE WATERFORD STEAM ELECTRIC STATION, UNIT 3, LICENSE RENEWAL APPLICATION – SET 9 (CAC NO. MF7492)

Dear Mr. Chisum:

By letter dated March 23, 2016, Entergy Operations, Inc. submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54, to renew the operating license NPF-38 for Waterford Steam Electric Station, Unit 3. The staff of the U.S. Nuclear Regulatory Commission (NRC or the staff) is reviewing the information contained in the license renewal application and has identified areas where additional information is needed to complete the review.

The enclosed requests for additional information were discussed with Mr. Alan Harris and a mutually agreeable date for the response is within 45 days from the date of this letter. If you have any questions, please contact me at 301-415-6447 or by e-mail at Phyllis.Clark@nrc.gov.

Sincerely,

Phyllis Clark

Phyllis Clark, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure:
As stated

cc: Listserv

ADAMS Accession No.: **ML16335A374** ***via email**

OFFICE	PM:RPB1:DLR	BC:RARB:DLR	BC:RPB1:DLR	PM:RPB1:DLR
NAME	PClark	DMorey*	RChazell* (Acting)	PClark
DATE	11/30/2016	12/1/2016	12/1/2016	12/1/2016

Phyllis Clark
Division of License Renewal
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-6447
Phyllis.Clark@nrc.gov

WATERFORD STEAM ELECTRIC STATION, UNIT 3

LICENSE RENEWAL APPLICATION
REQUESTS FOR ADDITIONAL INFORMATION – SET 9
(CAC NO. MF7492)

RAI 3.3.1-1a

Background:

The response to RAI 3.3.1-1 (FWS AMR-1), dated November 10, 2016, states that the makeup source for the fire water system is the potable water system. The response also states that consistent with SRP-LR Table 3.3-1, item 3.3.1-93, copper alloy piping exposed to raw water (potable) is not susceptible to general corrosion.

LRA Section 2.3.3.8, "Treated Water," states, "[t]he treated water system is no longer used for processing raw water from the Mississippi River. The treated water system has been inactivated except for the clearwell tank, clearwell transfer pumps, bearing lubrication water pumps for the circulating water pumps, and associated piping, valves, instrumentation, and controls."

LRA Section 2.3.3.15, "Auxiliary Systems in Scope for 10 CFR 54.4(a)(2) - Potable Water," states, "[t]he purpose of the potable water (PW) system is to distribute water from the St. Charles Parish Water System throughout the plant site. The system provides potable water, both hot and cold, for drinking water, sanitary services, and emergency showers and eyewash stations. The distribution system also supplies makeup water to the fire water storage tanks and to the primary water treatment plant clearwell tank."

UFSAR Section 9.5.1.2.2 (b) states, "[t]he makeup water supply to the water storage [fire water] tanks is capable of filling either tank within an 8-hour period. The tanks are filled directly from the potable water system or by pumps drawing suction from the Primary Water Treatment System clear well, which is supplied with either filtered Mississippi River water or Parish water."

Issue:

The staff has concluded that copper alloy components exposed to raw water (potable) are not susceptible to general corrosion. However, it appears that there is a conflict between statements in the LRA and the UFSAR. Based on the UFSAR references cited above, it is not clear whether the fire water system components will be exposed to raw water or raw water (potable). Filtered Mississippi River water would be considered raw water because it is assumed that the filtering process would not remove adverse chemical species (i.e., the water purity is not enhanced beyond removing sediment).

Based on the text in the LRA and UFSAR, it is not clear to the staff whether the LRA is correct and the UFSAR is out of date or there is some other interpretation of the wording, "which is supplied with either filtered Mississippi River water or Parish water." The staff is concerned that with the wording in the current licensing basis (i.e., UFSAR Section 9.5.1.2.2 (b)), filtered Mississippi River water could become a normal source of makeup for the fire water system. If the LRA is correct and the UFSAR is out of date, it is not apparent that either the modification or UFSAR change process would direct the engineering staff to address loss of material due to

general corrosion if the source of makeup for the fire water system were to become filtered Mississippi River water.

Request:

1. Clarify whether UFSAR Section 9.5.1.2.2 (b) is stating that filtered Mississippi River water could be a normal source of makeup for the fire water system. If UFSAR Section 9.5.1.2.2 (b) is in error or out of date, state whether the condition has been documented in the corrective action program.

RAI 3.3.1-2a

Background:

The response to RAI 3.3.1-2 (FWS AMR-2), dated November 10, 2016, states that for components citing LRA Table 3.3-1, items 3.3.1-64, 3.3.1-65, 3.3.1-130, and 3.3.1-131 (not associated with the flame arrestor and connected steel piping), flow blockage due to fouling will be managed by the Fire Water System Program.

GALL Report Table 3.3-1, items 64, 65, 130, and 131, as modified by LR-ISG-2012-02, Aging Management of Internal Surfaces, Fire Water Systems, Atmospheric Storage Tanks, and Corrosion under Insulation," state that flow blockage due to fouling is an applicable aging mechanism.

Issue:

The staff recognizes that the RAI request did not state that Table 2 line items should be revised. However, it was assumed that if the intent was to manage flow blockage due to fouling, then the Table 2s would have been revised to include this aging effect requiring management in order to be consistent with LR-ISG-2012-02.

The response postulates that because these AMR line items cite the Fire Water System Program and that the Fire Water System Program includes provisions to manage flow blockage due to fouling, then flow blockage due to fouling will be managed for these components. The Fire Water System program also manages loss of coating integrity. LRA Table 3.3.2-8, "Fire Protection – Water System," appropriately cites loss of coating integrity for hydrants and tanks. It would not be assumed that loss of coating integrity would be managed for all the other line items in LRA Table 3.3.2-8 because only the line items with internal coatings cite loss of coating integrity. The staff does not understand why it would be assumed that flow blockage due to fouling would be managed for all the appropriate line items in LRA Table 3.3.2-8 in the absence of citing the aging effect. The purpose of the Table 2s is to align aging effects being managed by a program with the specific applicable components. The staff lacks reasonable assurance that in the absence of citing specific aging effects in the Table 2s, the correct aging effects will be managed for each applicable Table 2 line item.

Request:

In the event that the Table 2 line items are not updated, state the basis for why there is reasonable assurance that flow blockage due to fouling will be managed for the above cited items.

RAI B.1.21-1

Background:

Section B.1.21 of the license renewal application (LRA) states that the "Neutron-Absorbing Material Monitoring Program, with enhancement, will be consistent with the program described in NUREG-1801, Section XI.M40, Monitoring of Neutron-Absorbing Materials Other than Boraflex." The "Detection of Aging Effects" program element of NUREG-1801, Section XI.M40 requires the frequency of inspection and testing to be no more than 10 years.

Issue:

In the licensee's LRA, Section A.1.21 states that the program relies on periodic inspection and testing to assure that the effects of aging do not cause degradation that impacts the required 5 percent sub-criticality margin through the period of extended operation; however, the LRA does not mention the maximum inspection interval of 10 years.

Request:

In accordance with the GALL report (NUREG-1801, Section XI.M40), provide a test and inspection frequency and its associated justification.

RAI 1.13-3d(a)

Background:

By letter dated October 12, 2016, RAI 1.13-3d requested the following:

(a) the minimum number of inspections that will occur in each 5-year interval;

(b) the criteria to be used to determine that additional inspections are warranted (e.g., extent of degradation at individual corrosion sites, rate of degradation change, trend of through-wall leaks); and

(e) how many additional inspections will be conducted within an inspection interval when through-wall leakage is detected or inspection results reveal pipe wall thickness below minimum wall?

Portions (c) and (d) of RAI 1.13-3d are not within the scope of this follow-up RAI.

The response to RAI 1.13-3d, dated November 10, 2016 stated:

> The number of inspections to be performed to address recurring internal corrosion (RIC) during each refueling cycle until the RIC has subsided is based on an evaluation under the corrective action program of what is needed to characterize the issue considering the material, environment and aging mechanisms to ensure the system can perform its intended function.
>
> The criteria used to determine that additional inspections are warranted consist of extent of condition, rate of degradation based on the change from previous inspections, and trend of overall system health.
>
> As mentioned above the number of additional inspections to address through-wall leakage or wall thickness below minimum wall within an inspection interval is based on the information needed to ensure the system can perform its intended function until the next scheduled inspection.

Issue:

The response to portions (a), (b), and (e) of RAI 1.13-3d were not responsive to the request as follows:

(a) the minimum number of inspections was not stated;

(b) the response simply repeated back the considerations cited in the RAI and did not provide the criteria; and

(e) the number of additional inspections was not stated.

Request:

Respond to the original requests for portions (a), (b), and (e) of RAI 1.13-3d.