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10 CFR 50.90

W3F1-2015-0047

June 18, 2015

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Subject: Waterford Steam Electric Station, Unit 3 Additional Information to Support Response to Request for Additional Information Regarding the Request to Permanently Extend the Integrated Leak Rate Frequency to 15 Years
Waterford Steam Electric Station, Unit 3 (Waterford 3)
Docket No. 50-382
License No. NPF-38

REFERENCES:

1. Entergy Letter W3F1-2014-0052, License Amendment Request to Change Technical Specifications to Extend the Type A Test Frequency to 15 Years, dated August 28, 2014. (ADAMS Accession No. ML14241A305)
2. Letter from NRC, Request for Additional Information Regarding the Request to Permanently Extend the Integrated Leak Rate Test Frequency to 15 Years (TAC No. MF4727), dated February 18, 2015. (ADAMS Accession No. ML15033A422)
3. Entergy Letter W3F1-2015-0021, Response to Request for Additional Information Regarding the Request to Permanently Extend the Integrated Leak Rate Frequency to 15 Years, dated May 4, 2015. (ADAMS Accession No. ML15124A946)
4. Entergy Letter W3F1-2015-0041, Identification of Additional Information to Support Response to Request for Additional Information Regarding the Request to Permanently Extend the Integrated Leak Rate Test Frequency to 15 Years, dated May 28, 2015. (ADAMS Accession No. ML15148A689)

Dear Sir or Madam:

In letter dated August 28, 2014 (Reference 1), Entergy Operations, Inc. (Entergy) submitted a license amendment request to change the Waterford 3 Technical Specifications to permanently extend the Integrated Leak Rate Test (ILRT) frequency to 15 years.

In letter dated February 18, 2015 (Reference 2), NRC requested Entergy to provide additional information to support review of the license amendment request to extend the ILRT frequency.

In letter dated May 4, 2015 (Reference 3), Entergy provided a response to the request for additional information. Based on a review of the responses that were provided in that submittal (Reference 3), additional clarifying information was identified that is required to supplement that RAI response. In letter dated May 28, 2015, Entergy notified NRC of the need to provide additional information. This letter provides that additional information. The responses provided in Attachment 1 supersede the previous responses provided to RAI Questions 5, 6, 7, 9, and 12.b (Reference 3) in their entirety.

This correspondence contains no new commitments.

If you have any questions or require additional information, please contact the Regulatory Assurance Manager, John Jarrell, at 504-739-6685.

I declare under penalty of perjury that the foregoing is true and correct. Executed on June 18, 2015.

Sincerely,

MRC/LEM

Attachments:
1. Waterford 3 Supplemental Information to Support Response to Request for Additional Information
2. Revised Section 4.3 from License Amendment Request to Change Technical Specifications to Extend the Type A Test Frequency to 15 Years
3. Revised Attachment 4 from License Amendment Request to Change Technical Specifications to Extend the Type A Test Frequency to 15 Years

cc: Mr. Marc L. Dapas, Regional Administrator
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Attachment 1

W3F1-2015-0047

Waterford 3 Supplemental Information to Support Response to Request for Additional Information

REQUEST FOR ADDITIONAL INFORMATION

REGARDING THE REQUEST TO PERMANENTLY EXTEND THE INTEGRATED

LEAK RATE TEST FREQUENCY TO 15 YEARS

ENTERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

By letter dated August 28, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14241A305), Entergy Operations, Inc., submitted a license amendment request (LAR) to change the Waterford Steam Electric Station, Unit 3 (WF3) Technical Specification 6.15, "Containment Leakage Rate Testing Program," to allow a permanent extension of the Type A primary containment integrated leak rate test frequency from 10 years to 15 years.

The U.S. Nuclear Regulatory Commission staff has reviewed the LAR and the following information is needed to complete the review. The responses to the questions below replace the previous responses to RAI Questions 5, 6, 7, 9, and 12.b provided in Reference 1 in their entirety.

RAI #5

Sections 4.0 and 4.3 of the LAR state that the ASME Boiler and Pressure Vessel (BPV) Code, Section XI, Subsection IWL, does not apply to WF3.

As described in Section 3.8 of the WF3 final safety analysis report, both the shield building and the containment vessel are supported on a common reinforced concrete foundation mat. The containment vessel is supported on the concrete fill, which transfers the loads by bearing to the foundation mat below.

Subsection IWL provides the examination requirements for reinforced concrete Class CC components. Considering that the containment vessel is supported on a concrete fill and a reinforced concrete foundation mat, provide clarification regarding the LAR's statement of Subsection IWL not being applicable to WF3.

RAI #5 Response:

Subsection IWL provides the examination requirements for reinforced concrete Class CC components. Although the containment vessel is supported on a concrete fill and a reinforced concrete mat, it is not part of the containment system.
Per ASME Section XI 2001- 2003 Addenda, Subsection IWL-1210 Examination Requirements, "The examination requirements of this Subsection shall apply to concrete containments."

Per WF3 FSAR, Section 3.8.1, Concrete Containment, "The Containment System does not utilize a concrete containment. The primary containment is a free standing steel pressure vessel which is surrounded by a reinforced concrete Shield Building. The Shield Building is designed as a seismic Category I structure and is discussed under Subsection 3.8.4. The steel containment and the Reactor Building internal structure are described in Subsection 3.8.2 and 3.8.3, respectively."

"The Steel Containment Vessel (SCV) is a low leakage rate free standing steel pressure shell, completely enclosed by the concrete shield structure, with an annular space provided between the walls and domes of each structure to permit construction, operations, and in-service inspection. The SCV consists of a vertical upright cylinder, all welded steel pressure vessel, with hemispherical top head and an ASME ellipsoidal bottom head. The steel vessel is rigidly supported on a concrete base that was placed after the cylindrical shell and the ellipsoidal bottom had been constructed and post weld heat treated. The containment vessel, shield building, reactor auxiliary building, and fuel handling building are supported on a common foundation mat. Concrete floor fill was placed above the ellipsoidal shell bottom of the SCV after the vessel had been post weld heat treated, to anchor the vessel. All components and framing inside the SCV are supported on the concrete floor fill."

Per ASME Section XI 2001 – 2003 Addenda, Subsection IWL-1220(b), portions of the concrete surface that are covered by the liner, foundation material, or backfill, or are otherwise obstructed by adjacent structures, components, parts, or appurtenances, are exempt from the examination requirements of IWL-2000. Per ASME Section XI 2001 – 2003 Addenda, Subsection IWE-1220(b), embedded or inaccessible portions of containment vessels, parts, and appurtenances that met the requirements of the original Construction Code are exempted from the examination requirements of IWE-2000. Since the common concrete foundation slab and the bottom steel plate are inaccessible, they are exempt from examination per ASME Section XI 2001 – 2003 Addenda, Subsection IWL-1220(b) and IWE-1220(b) respectively.

Although portions of the common concrete foundation slab (basemat) are exempt from ASME Section XI 2001 – 2003 Addenda, Subsection IWL, it is still monitored for degradation. Per WF3 FSAR, Section 2.5.4.13.4, The Nuclear Plant Island Structure (NPIS) basemat continues to be monitored. The basemat monitoring program provides for data collection and trending such that information allows an assessment of the structural integrity of the basemat.

A WF3 procedure implements Technical Specification T.S.6.8.4.e 1 and 4 requirements which states that the Basemat Monitoring Program will monitor the settlement of the basemat and changes in crack width. This procedure provides the methods for verifying the NPIS common foundation basemat integrity through measurement of the common foundation basemat settlement, and measurement of fifteen (15) instrumented basemat cracks.

A recurring PM tracks the completion of the basemat inspections on an eighteen (18) month frequency. A review of the basemat inspections dating back to 1997 revealed that all of the acceptance criteria were met with satisfactory results.

RAI #6

Please provide information of instances, during implementation of the WF3 containment in-service inspection program, where existence of or potential for degraded conditions in inaccessible areas were identified and evaluated based on conditions found in accessible areas, as required by 10 CFR 50.55a(b)(2)(viii)(E) and 10 CFR 50.55a(b)(2)(ix)(A). If there were any instances of such conditions, discuss the findings and corrective actions taken to disposition the findings.

RAI #6 Response:

As discussed in the response to RAI #5 above, Per ASME Section XI 2001 – 2003 Addenda, Subsection IWL-1220(b), portions of the concrete surface that are covered by the liner, foundation material, or backfill, or are otherwise obstructed by adjacent structures, components, parts, or appurtenances, are exempt from the examination requirements of IWL-2000. Since the common concrete foundation slab and the bottom steel plate are inaccessible, they are exempt from examination per ASME Section XI 2001 – 2003 Addenda, Subsection IWL-1220(b) and IWE-1220(b) respectively. Since WF3 has a steel containment, it is not a Class CC application; therefore, 10 CFR 50.55a(b)(2)(viii)(E) does not apply. Even though IWL does not apply, a review of the basemat inspection history dating back to 1997 did not reveal instances where conditions existed in accessible areas that could indicate the presence of or the result in degraded conditions in inaccessible areas.

A condition report dated 10/20/2000 documents an instance, during implementation of the WF3 containment in-service inspection program, where existence of or potential for degraded conditions in inaccessible areas were identified and evaluated based on conditions found in accessible areas. The condition description states that:

“VT-3 Examinations of the interior moisture barrier (located between the containment vessel and the concrete floor on the ledge at elevation - 1.5') revealed 22 locations where the moisture barrier has failed by various mechanisms. The moisture barrier is intended to provide long term corrosion protection to the containment vessel. No immediate/short term challenges to containment integrity were noted during the examinations. The NDE visual examination report provides detail on the location and conditions noted. Additionally, the affected areas have been marked on the containment vessel.

One of the affected locations is located immediately below penetration #21. This location is being wetted by condensation from the CCW pipe. The containment vessel at location #21 is experiencing general corrosion. The corrosion noted is not sufficient to affect either the structural integrity or the leak tightness of containment; however, the corrosion does indicate the potential for degradation below the moisture barrier and requires further investigation.

None of the remaining locations exhibited signs of either wetting or corrosion of the containment vessel.”

The Responsible Engineer’s (RE) Evaluation of Inaccessible Areas was documented in the response to the corrective action dated 1/30/2001 and is listed below:

Scope:

This evaluation covers the evaluations required by CEP-CII-002 paragraph 1.7.3.5 and by 10 CFR 50.55a(b)(2)(ix)(A). Evaluations that are required by CEP-CII-002 paragraph 1.7.3.3 are documented in attachment 2 to this corrective action (CA).

Results of Evaluation:

1) During examination of the moisture barrier two areas were identified which could indicate the presence of degradation in inaccessible areas.
2) Investigation of the first area revealed only limited areas of surface corrosion with no significant wall loss or pitting. All surface areas of the containment vessel at this location were determined to be acceptable by examination in accordance with IWE-3122.1.
3) Investigation of the second area revealed excessive corrosion in the region below the moisture barrier in the annulus. A condition report dated 10/27/2000 was prepared to document corrective actions associated with this corrosion.

Discussion:

Paragraph 1.7.3.5 of CEP-CII-002 requires the RE (or designee) to prepare a condition report when the RE determines that conditions exist in accessible areas which could indicate the presence of or result in degradation of inaccessible areas. The purpose of this evaluation is to evaluate the acceptability of the inaccessible area in question. Additionally the RE is to prepare inputs to the OAR-1 which include the following:

1) A description of the type and estimated extent of degradation, and the conditions that led to the degradation;
2) An evaluation of each area, and the results of the evaluation, and;
3) A description of necessary corrective actions.
CA #7 addresses the need for the RE to provide inputs to the OAR-1

The flaws identified by the NDE VT-3 reports revealed two areas that indicated potential degradation of the containment vessel in the inaccessible areas below the moisture barrier.

One area is located immediately below penetration #21 and has been wetted due to condensation from the CCW pipe using penetration #21. General corrosion of the containment vessel was noted in the vicinity of the moisture barrier in this location. After removal of the moisture barrier, a small area of general corrosion was noted to exist below the moisture barrier at this location. This area of corrosion did not extend below the area that could be accessed by removal of the moisture barrier. At this location, the corrosion consisted of only a light surface corrosion with no pitting or cracking. Additionally, there was no discernable thinning of the containment vessel due to the corrosion. As a result the corrosion was determined to be acceptable without engineering evaluation (other than the evaluation required due to the indications of degradation in inaccessible areas – the areas subsequently examined following removal of the moisture barrier). The surface areas were accepted by examination in accordance with the provisions of IWE-3122.1. After

determination that the areas were acceptable by examination, the areas of general corrosion were cleaned and the vessel was re-coated. The moisture barrier in this area was replaced on the same MAI. The NDE VT-3 report documents the re-inspection of the moisture barrier.

One area is located almost directly below the maintenance access hatch. Investigation of the area revealed that the corrosion was more extensive than originally anticipated and condition report dated 10/27/2000was prepared to document the corrective actions associated with the corrosion on the containment vessel below the moisture barrier within the annulus region.

The Responsible Engineer (RE) provided inputs to the Owner's Activity Report (OAR-1) in response to a corrective action dated 11/12/2001. These inputs are provided in Tables 2 through 4 below:

Tables 2 - Conditions in accessible areas which indicate the potential for degradation in inaccessible areas (Per 10 CFR 50.55a (b)(2)(ix)(A):

Type and Extent of Degradation	Conditions that led to degradation	Evaluation	Results of Evaluation	Necessary Corrective Action
Mechanical Damage to the inner and outer moisture barriers with some corrosion noted in 2 locations.	Wear and Tear due to traffic and work around the moisture barrier.	CR-W3-2000-1275 CA 4, Attachment 3.	During examination of the moisture barrier two areas were identified which could indicate the presence of degradation in inaccessible areas. 1) Investigation of the first area, area #13 on NDEN 200-151, revealed only limited areas of surface corrosion with no significant wall loss or pitting. All surface areas of the containment vessel at this location were determined to be acceptable by examination in accordance with IWE-3122.1. 2) Investigation of the second area, area #15 on NDEN-155, revealed more serious corrosion in the region below the moisture barrier in the annulus. CR-W3-200-1375 was prepared to document corrective actions associated with this corrosion. All surface areas examined were determined to be acceptable by examination in accordance with IWE 3122.1 following UT measurements and determination that the corrosion mechanism was not active.	1) The inner and outer moisture barriers were repaired on MAI # 421737. 2) QA NDE inspections of these areas are noted in inspection reports NDEN 2000-483 and NDEN 2000-484. 3) 100% of the moisture barrier shall be examined each refueling outage until sufficient data is obtained to allow re-evaluation by the RE to determine the optimum examination schedule. 4) Corrosion noted below the moisture barrier on the containment vessel within the annulus is considered in CR-W3-2000-1375. Area determined to be acceptable by examination in accordance with IWE 3122.1.

Table 3 - Areas with Flaws or Other Relevant Conditions Requiring Evaluation for Continued Service:

Examination Category	Item Number	Item Description	Flaw Characterization	Flaw or Relevant Condition Found During Scheduled Section XI Examination or Test? (Yes/No)
No Areas required evaluation for continued service.	N/A	N/A	N/A	N/A

Table 4 - Areas Requiring Repair, Replacement or Corrective Measures for Continued Service:

Code Class	Repair, Replacement or Corrective Measure	Item Description	Description of Work	Flaw or Relevant Condition Found During Scheduled Section XI Examination or Test? (Yes/No)	Date Completed	Repair/Replacement Plan Number
MC	Repair	Moisture Barrier MB-02 Mechanical Damage in two locations.	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111
MC	Repair	Moisture Barrier MB-04 Mechanical Damage in two locations.	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111

MC	Repair	Moisture Barrier MB-05 Mechanical Damage in one location.	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111
MC	Repair	Moisture Barrier MB-06 Mechanical Damage in two locations.	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111
MC	Repair	Moisture Barrier MB-07 Mechanical Damage in two locations.	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111
MC	Repair	Moisture Barrier MB-08 Mechanical Damage in 6 locations.	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111
MC	Repair	Moisture Barrier MB-09 Mechanical Damage in one location.	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111

MC	Repair	Moisture Barrier MB-10 Mechanical Damage in 3 locations.	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111
MC	Repair	Moisture Barrier MB-11 Mechanical Damage in 3 locations.	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111
MC	Repair	Moisture Barrier MB-13 Mechanical Damage in 2 locations that overlap with MB-14.	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111
MC	Repair	Moisture Barrier MB-14 Mechanical Damage in 10 locations. (2 overlap with MB-13, 3 overlap with MB-15)	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111
MC	Repair	Moisture Barrier MB-15 Mechanical Damage in 14 locations. (3 overlap with MB-14)	Repair moisture barrier[1].	Yes	11/6/00	MAI 421737 Exempt from repair/replacement rules of IWA 4000 by IWA 4111

Note 1: Repair of moisture barriers consisted of removal of damaged areas of the moisture barrier seal

Please note that Table 4-2 of the LAR (Reference 2) describes that the moisture barrier inspections performed in the spring of 2008 (RF15) were satisfactory with the exception of sections MB-02, -03, -05, and -06 which revealed signs of aged related degradation and mechanical damage which required repair. Although this may seem contradictory to the statement in Section 4.4 of the LAR which states that examinations were performed every outage from RF10 through RF16 with the degradation remaining essentially unchanged over this time period, Section 4.4 of the LAR is actually discussing the augmented, Owner Elected Examinations, not the moisture barrier sections MB-02, -05, and -06 listed in the table above.

Per Section 4.4 of the LAR (Reference 2), in addition to the requirements of Table IWE-2500-1, Owner Elected Examinations were performed every outage from RF10 through RF16. Due to the degradation remaining essentially unchanged over this time period, these areas were evaluated to no longer require augmented examinations in accordance with IWE-2420(c).

RAI #7

Section 9.2.3.2 of NEI 94-01, Revision 2-A, "Industry Guideline for Implementing Performance−Based Option of 10 CFR Part 50, Appendix J," and Condition 2 in Section 4.1 of the NRC safety evaluation for NEI 94-01, Revision 2, require supplemental general visual inspections of accessible interior and exterior surfaces of the containment for structural deterioration that may affect the containment leak-tight integrity. These inspections must be conducted prior to each Type A test and during at least three other outages before the next Type A test if the interval for the Type A test has been extended to 15 years.

Provide a schedule for a typical 15-year interval (between the last Type A test in 2005 and the proposed next Type A test in 2020), in a tabular format, of in-service inspections that were and will be performed on the containment vessel, and explain how it meets the requirements in Section 9.2.3.2 of NEI 94-01, Revision 2-A, and Condition 2 in Section 4.1 of the NRC safety evaluation NEI 94-01, Revision 2. Please include the in-service inspection intervals with the start date and end date of each inspection period, and the corresponding refueling outages.

RAI #7 Response:

Preventative maintenance tasks exist to perform periodic general inspections of the accessible interior and exterior surfaces of the containment vessel. The table below provides a schedule for a typical 15-year interval (between the last Type A test in 2005 and proposed next Type A test in 2020) with the in-service inspection intervals with the start date and end date of each inspection period and the corresponding refueling outages.

Containment Examination Schedule

Examination Type	ISI Inspection Interval	ISI Inspection Period	Refuel Outage / Date
ILRT Type A Test	2nd Interval	3rd Period	RF13 / 2005
IWE Containment Surface Area Inspections	2nd Interval	3rd Period	RF13 / 2005
IWE Inner/Outer Moisture Barrier Inspection	2nd Interval	3rd Period	RF13 / 2005
IWE Inner/Outer Moisture Barrier Inspection	2nd Interval	3rd Period	RF14 / 2006
IWE Inner/Outer Moisture Barrier Inspection	2nd Interval	3rd Period	RF15 / 2008
IWE Inner/Outer Moisture Barrier Inspection	3rd Interval	1st Period	RF16 / 2009
IWE Containment Surface Area	3rd Interval	1st Period	RF16 / 2009

Inspections			
IWE Containment Bolted Connections	3rd Interval	1st Period	RF17 / 2011
IWE Containment Surface Area Inspections	3rd Interval	2nd Period	RF18 / 2012-2013
IWE Inner/Outer Moisture Barrier Inspection	3rd Interval	2nd Period	RF18 / 2012-2013
IWE Inner/Outer Moisture Barrier Inspection	3rd Interval	2nd Period	RF19 / 2014
IWE Containment Bolted Connections	3rd Interval	2nd Period	RF19 / 2014
IWE Containment Surface Area Inspections	3rd Interval	3rd Period	RF20 / 2015
IWE Inner/Outer Moisture Barrier Inspection	3rd Interval	3rd Period	RF20 / 2015
IWE Inner/Outer Moisture Barrier Inspection	3rd Interval	3rd Period	RF21 / 2017
IWE Containment Bolted Connections	3rd Interval	3rd Period	RF21 / 2017
IWE Inner/Outer Moisture Barrier Inspection	4th Interval	1st Period	RF23 / 2020
IWE Containment Bolted Connections	4th Interval	1st Period	RF23 / 2020
IWE Containment Surface Area Inspections	4th Interval	1st Period	RF23 / 2020
ILRT Type A Test	4th Interval	1st Period	RF23 / 2020

RAI #9

Attachment 4 of the LAR states that Table 4-1 presents summaries of the results from the WF3 shield building interior and exterior structural inspections which were performed during each refueling shutdown and prior to any integrated leak test. Contrary to this statement, Section 4.3 of the LAR states that Table 4-1 presents summaries of the results from the WF3 containment building interior and exterior structural inspections which were performed every three years and the shield building inspection was performed prior to any integrated leak test. Also, the dates included in Table 4-1 do not appear to support the statement in Attachment 4 that the WF3 shield building was inspected during each refueling outage. Please provide clarification.

RAI #9 Response:

The following clarifications are provided. For completeness, clean (revised) copies of the affected sections of the original LAR (Reference 2) have been provided as part of this response. Attachment 2 to this RAI response provides a clean (revised) copy of Section 4.3 of the LAR (Reference 2) and Attachment 3 to this RAI response provides a clean (revised) copy of Attachment 4 of the LAR (Reference 2).

The structural integrity inspection of the inside and outside of the containment vessel is performed at a 2R periodicity (3yrs).

The structural integrity inspection of the inside and outside of the shield building is performed prior to any integrated leak rate test.

The fifth paragraph of Section 4.3 of the LAR (Reference 2) is revised to state, “Table 4-1 presents summaries of the results from the WF3 shield building interior and exterior structural inspection surveillances. These surveillances were performed prior to any integrated leak rate test.”

The title of Attachment 4 of the LAR (Reference 2) is revised to state, “Summary of the Results from Shield Building and Containment Inspections”

The title on page 1 of 4 of Attachment 4 of the LAR (Reference 2) is revised to state, “Summary of the Results from Shield Building and Containment Inspections”

The first paragraph on page 1 of 4 of Attachment 4 to the LAR (Reference 2) is revised to state, “Below is a list of WF3 shield building and containment inspections and summaries of the results of those inspections. Note: Subsection IWL does not apply to Waterford 3 since the containment vessel does not rely on the detached concrete shell for structural support or pressure retention.”

The second paragraph on page 1 of 4 of Attachment 4 to the LAR(Reference 2) is revised to state, “Table 4-1 presents summaries of the results from the WF3 shield building interior and exterior structural inspection surveillances. These surveillances were performed prior to any integrated leak rate test.”

The title of Table 4-1 is revised to “Shield Building Interior and Exterior Structural Inspections”

The following information is added to Table 4-1 of the LAR (Reference 2):

September 1995	The following interior and exterior areas of the shield building were inspected with no deficiencies noted: shield building roof, exterior shield building walls to the roof, exterior surfaces in areas of the DCT-A, DCT-B, B Switchgear, +35 penetration rooms, MSIV A, MSIV B, MSIV passage way, -4 RAB wing area, -35 RAB wing area, and +21 RAB. All accessible penetrations, CAP valves, and the top of the containment vessel were inspected inside the annulus with no structural problems observed. Interior inspections were performed on penetrations from elevations -4, +21, electrical penetrations at +35 and +46, and the containment ring header with no structural deficiencies.

The following information is removed from Table 4-1 of the LAR (Reference 2):

November 2009	The general visual inspection of the containment vessel was performed along with the IWE inspections. Inspection of the shield building noted no changes from the previous inspections.
December 2012	The general visual inspection of the containment vessel was performed along with the IWE inspections and the results were satisfactory.

RAI #12b

Please provide the following information:

b. Percent of the total number of Type C tested components that are on 60-month extended performance-based test interval.

RAI #12b Response:

Forty-eight percent (48%) of the total number of Type C tested components are on a 60-month extended performance-based test interval.

WF3 has ninety-five (95) Type C tested components; forty-six (46) are on a 60-month test frequency, four (4) are on a 48-month test frequency, twenty (20) are on an 18-month test frequency, twenty-one (21) are on an 18-month frequency tied to IST testing, and four (4) are on an 18-month test frequency and are not included in performance based testing under Option B. Of the 95 Type C tested components, seventy (70) are eligible to be placed on a 60-month extended interval based on component performance history. Currently, forty-six (46) of the eligible seventy (70), or 66%, of the Type C tested components are on a 60-month extended performance-based test interval.

Based on the results of recent testing as shown in Section 4.2 of the LAR, sufficient margin has been maintained based on a decent Type B and Type C component performance. The

combined Type B and Type C leakage acceptance criteria is 630,000 sccm. The maximum and minimum pathway leakage rate summary totals for the last two refueling outages were:

RF18 As-Found Minimum Pathway Leakage = 52,520 sccm
RF18 As-Left Maximum Pathway Leakage = 48,205 sccm

RF19 As-Found Minimum Pathway Leakage = 56,849 sccm
RF19 As-Left Maximum Pathway Leakage = 69,947 sccm

References:

1. Entergy Letter W3F1-2015-0021, Response to Request for Additional Information Regarding the Request to Permanently Extend the Integrated Leak Rate Frequency to 15 Years, dated May 4, 2015. (ADAMS Accession No. ML15124A946)

2. Entergy Letter W3F1-2014-0052, License Amendment Request to Change Technical Specifications to Extend the Type A Test Frequency to 15 Years, dated August 28, 2014. (ADAMS Accession No. ML14241A305)

Attachment 2

W3F1-2015-0047

Revised Section 4.3 from License Amendment Request to Change Technical Specifications to Extend the Type A Test Frequency to 15 Years

This attachment provides a clean, revised copy of Section 4.3 of the original LAR (Reference 1). It should be noted that references to other attachments and tables are in the context of the original LAR (Reference 1).

4.3 Supplemental Inspection Requirements

Consistent with the guidance provided in NEI 94-01, Revision 2, Section 9.2.3.2, a general visual examination of accessible interior and exterior surfaces of the containment for structural deterioration that may affect the containment leak-tight integrity is conducted prior to each Type A test and during at least three other outages before the next Type A test if the interval for the Type A test has been extended to 15 years.

Per SE Section 3.1.1.3, “To avoid duplication or deletion of examinations, licensees using NEI TR 94-01, Revision 2, have to develop a schedule for containment inspections that satisfy the provisions of Section 9.2.3.2 of this TR and ASME Code, Section XI, Subsection IWE and IWL requirements.”

These inspections are performed along with the IWE program inspections and are ensured via a recurring task established to perform a containment building integrity check every three years as well as a recurring task to perform a shield building integrity check to coincide with the performance of the ILRT.

Attachment 4 provides a list of the summaries of the results from various WF3 reactor building inspections. It should be noted that Subsection IWL does not apply to Waterford 3 since the containment vessel does not rely on the detached concrete shell for structural support or pressure retention.

Table 4-1 presents summaries of the results from the WF3 shield building interior and exterior structural inspection surveillances. These surveillances were performed prior to any integrated leak rate test.

Table 4-2 presents the IWE inspection summary results. WF3 has three (3) in-service inspection (ISI) periods during each ten (10) year Interval.

The current testing frequencies for Type B and C tests are not affected by this requested amendment to permanently extend the Type A test interval to fifteen (15) years.

References:

1. Entergy Letter W3F1-2014-0052, License Amendment Request to Change Technical Specifications to Extend the Type A Test Frequency to 15 Years, dated August 28, 2014. (ADAMS Accession No. ML14241A305)

Attachment 3

W3F1-2015-0047

Revised Attachment 4 from License Amendment Request to Change Technical Specifications to Extend the Type A Test Frequency to 15 Years

This attachment provides a clean, revised copy of Attachment 4 of the original LAR (Reference 1). It should be noted that references to other attachments and tables are in the context of the original LAR (Reference 1).

Summary of the Results from
Shield Building and Containment Inspections

Below is a list of WF3 shield building and containment inspections and summaries of the results of those inspections. Note: Subsection IWL does not apply to Waterford 3 since the containment vessel does not rely on the detached concrete shell for structural support or pressure retention.

Table 4-1 presents summaries of the results from the WF3 shield building interior and exterior structural inspection surveillances. These surveillances were performed prior to any integrated leak rate test.

Table 4-2 presents the IWE inspection summary results. WF3 has three (3) ISI periods during each ten (10) year Interval.

Table 4-1
Shield Building Interior and Exterior Structural Inspections

May 1988	The exterior and interior of the shield building were examined prior to pressurization for the first periodic Type A ILRT performed for WF3. No evidence of deterioration was found as documented in letter W3P88-1283 dated August 23, 1988.
June 1991	The exterior and interior surfaces of the shield building were examined prior to pressurization for the second periodic Type A ILRT performed for WF3. No evidence of deterioration was found as documented in letter W3F1-91-0447 dated August 12, 1991.
September 1995	The following interior and exterior areas of the shield building were inspected with no deficiencies noted: shield building roof, exterior shield building walls to the roof, exterior surfaces in areas of the DCT-A, DCT-B, B Switchgear, +35 penetration rooms, MSIV A, MSIV B, MSIV passage way, -4 RAB wing area, -35 RAB wing area, and +21 RAB. All accessible penetrations, CAP valves, and the top of the containment vessel were inspected inside the annulus with no structural problems observed. Interior inspections were performed on penetrations from elevations -4, +21, electrical penetrations at +35 and +46, and the containment ring header with no structural deficiencies.
May 2005	The general visual inspection results reflect compliance with the building structural integrity requirements. All accessible areas of the inner shield building were examined from the annulus area. The shield building was inspected from the interior of the annulus. Superficial cracks were found on the surface of the shield building dome. These cracks appeared to be minor in appearance with calcium carbonate deposits on the surface. This was reported during the previous inspection on April 10, 1991. No change was noted at the time of inspection. The exterior of the Shield Building was inspected from the +46 elevation up to the Shield Building dome and accessible areas of the exterior Shield Building from the bottom of the cooling towers and RAB (-35 elevation on up). Several small horizontal cracks on multiple vertical Shield Building 'ribs' were identified at varying heights. Surface cracks were identified between 3FA & 2FH @ 8A, Westside Dry Cooling Tower, approximately +5 elevation, 20-25 ft in length. Surface cracks were identified between 2FH & 1FH Westside Dry Cooling Tower, approximately +5 elevation, 15-20 ft in length. An examination was performed of the roof of the shield building. Small surface cracking was present as found in the last inspection on 4/30/91. This inspection revealed no apparent growth of cracking, nor any new signs of structural deterioration.

Table 4-2
IWE Inspections

November 2003	An inspection of the containment building integrity was conducted in accordance with Section XI IWE per WO 26901. A general visual inspection was performed including 100% of the accessible containment vessel surface areas and the area around the Fuel Transfer Tube. VT-3 examinations of the coatings on the interior of the containment vessel found areas with flaking, peeling, blistering, and discoloration of the painting (CR-WF3-2003-3082 and CR-WF3-2003-3142). Containment coating is not classified as an IWE component. While IWE does contain separate examination requirements of some non-structural components such as seals, gaskets, and moisture barriers; it does not contain separate examination requirements for containment coating. These locations were repaired and re-inspected in RF12 with satisfactory results. VT-3 examinations of the interior moisture barrier (located between the containment vessel and the concrete floor on the ledge on elevation -4) revealed 13 locations where the moisture barrier has failed by a combination of tearing and cracking (CR-WF3-2003-3083). These damaged sections were removed and replaced with new sealant under WO 27307.
May 2005	A general visual inspection of the inside liner plate was performed in accordance with ASME Section XI Subsection IWE. The examination of the liner plate met the screening criteria or was accepted by the responsible Engineer. The general visual inspection results reflect compliance with the building structural integrity requirements. All accessible areas of the outer liner plate were examined from the annulus area. The steel liner plate was inspected in all accessible areas and no discrepancies were found.
Fall 2006	Eleven (11) bolted connection inspections were performed in RF14 with satisfactory results.
Spring 2008	The inner and outer moisture barrier sections MB-01 through MB-15 were inspected in RF15 under WO 125996. All sections were satisfactory with the exception of sections MB-02, -03, -05, and -06 which revealed signs of age related degradation and mechanical damage which required repair.
November 2009	The inner and outer moisture barrier sections MB-01 through MB-15 as well as containment surface area inspections of dome quadrants 1 through 9, plates 1 through 162 (with the exception of 71), and the area around the fuel transfer tube were performed in RF16 with satisfactory results.
April 2011	Twenty-seven (27) program bolted connections were examined in RF17 with satisfactory results.

December 2012	Containment surface area inspections were performed on sections MB-01 through MB-15 in RF18 as well as the moisture barrier inside the annulus from 0° to 138° azimuth. Results of the liner inspections were satisfactory. As a result of the steam generator replacement activities, hydroblasting was performed and water was found standing on the moisture barrier between the 30° and 70° azimuth location. Three 18"x18" moisture barrier sections were removed and the liner examined at the 30°, 42°, and 70° locations to assure no active degradation was present. After replacement of these sections of the moisture barrier, an examination of the repaired moisture barrier areas were performed; the examination results were satisfactory.
May 2014	The inner moisture barrier was inspected in RF19 of items MB-02 through MB-11 with satisfactory results. The outer moisture barrier was inspected in RF18. Twenty-seven (27) program bolted connections were examined in RF19 with satisfactory results.

References:

1. Entergy Letter W3F1-2014-0052, License Amendment Request to Change Technical Specifications to Extend the Type A Test Frequency to 15 Years, dated August 28, 2014. (ADAMS Accession No. ML14241A305)