Entergy Nuclear Northeast
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249
Tel 914 254 6700

Lawrence Coyle
Site Vice President

NL-15-062

May 20, 2015

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

SUBJECT: Response to Request for Additional Information Regarding Extending the Containment Type A Leak Rate Testing Frequency to 15 years (TAC NO. MF3369)
Indian Point Unit Number 2
Docket No. 50-247
License No. DPR-26

REFERENCES:
1. NRC Letter to Entergy, Request for Additional Information Regarding Extension of the Containment Type A Leak Rate Testing Frequency to 15 years (TAC NO. MF5382), dated March 17, 2015
2. Entergy Letter NL-14-128 to NRC Regarding Proposed License Amendment Regarding Extending the Containment Type A Leak Rate Testing Frequency to 15 years, dated December 9, 2014 (ML14353A015)

Dear Sir or Madam:

Entergy Nuclear Operations, Inc., (Entergy) is hereby providing the attached response to the NRC request for additional information, Reference 1, associated with the proposed changes to the Indian Point 2 Technical Specifications (TS) in Reference 2. The responses to the request for additional information are provided in Attachment 1.

No new Regulatory Commitment is made in this submittal.

A copy of this response and the associated Attachments is being submitted to the designated New York State official in accordance with 10 CFR 50.91.

A017
NRR

If you have any questions or require additional information, please contact Mr. Robert Walpole, Manager, Regulatory Assurance at (914) 254-6710.

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 20, 2015.

Sincerely,

LC/sp

Attachment: Response to Request for Additional Information Regarding the Extension of the Containment Type A Leak Rate Testing Frequency to 15 years

cc: Mr. Douglas Pickett, Senior Project Manager, NRC NRR DORL
Mr. Daniel Dorman, Regional Administrator, NRC Region 1
NRC Resident Inspectors Office
Mr. Francis J. Murray, Jr., President and CEO, NYSERDA
Ms. Bridget Frymire, New York State Dept. of Public Service)

ATTACHMENT TO NL-15-062

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING THE EXTENSION OF THE CONTAINMENT TYPE A LEAK RATE TESTING FREQUENCY TO 15 YEARS

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
DOCKET NO. 50-247

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING THE EXTENSION OF THE CONTAINMENT TYPE A LEAK RATE TESTING FREQUENCY TO 15 Years

In order for the NRC staff to complete their review of the Entergy request for Technical Specification Amendment to extend the Containment Type A leak test, the NRC Mechanical and Civil Engineering Branch (EMCB) has requested additional information. These requests and Entergy's responses follow:

EMCB RAI-1

Table 4.4.2 in Section 4.4 of Reference 1 lists the planned IWL inspections of exterior surfaces of the containment. The table lists an IWL examination (June 2005) prior to the last Type A integrated leak rate test (ILRT) (April 2006), and examinations in June of 2010, 2015, and 2020. The associated text in Section 4.4 states that the next IWL examination is scheduled for 2016, as opposed to 2015, and then again prior to the date for the next ILRT in refueling outage 2R24. Based on the table and the text, it appears there will be two IWL examinations between ILRT tests plus the examination conducted prior to the test.

Explain how this meets the requirements in Section 9.2.3.2 of Reference 2, which states that a general visual examination of accessible exterior surfaces of the containment "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."

Response

The IP2 containment external examinations are performed in accordance with the requirements of sub-section IWL of the ASME Section XI Code, 2001 Edition with the 2003 Addenda. Table IWL-2500-1 requires that a general visual examination of the concrete (i.e. external) accessible surface areas be performed every 5 years. The IWL inspections are normally performed during normal power operation. In addition to the IWL inspections, IP2 performs an "External Containment Structural Visual Inspection" under surveillance test 2-PI-2Y001. This inspection is performed every two years by Operations personnel and it includes the accessible portions of the external containment surfaces, the containment penetrations and the hatches. Changes in defect dimensions or characteristics are identified and documented for tracking and trending purposes. At least one of these inspections is performed prior to the next Type A test. Therefore, external containment concrete inspections meet the requirements (including the frequency) of paragraph 9.2.3.2 of NEI 94-01.

NL-14-128, Section 4.4, Table 4.4.2, stated that the next IWL examinations are scheduled for June 2015 (the Table is correct and the text is wrong) and 2020. The schedule for the next 2-PI-2Y001 inspections is June 2015. Although these inspections are not performed during an outage, there are at least two IWL and up to seven 2-PI-2Y001 inspections performed between Type A tests. The 2-PI-2Y001 is the last scheduled inspection before the next Type A test that would be performed in 2020 per this amendment request.

The containment internal examinations are performed in accordance with the requirements of Sub-section IWE of the ASME Section XI Code, 2001 Edition with the 2003 Addenda. Table IWE-2500-1 requires that a general visual examination of the metal containment liner (i.e. internal) accessible

surface areas be performed every inspection period (i.e. every 3 and 1/3 years). The IWE inspections are normally performed during refueling outages. Therefore, internal containment liner inspections meet the requirements (including the frequency) of paragraph 9.2.3.2 of NEI 94-01.

EMCB RAI-2

Section 4.4.2 of Reference 1 provides a high-level summary of the recent American Society of Mechanical Engineers Boiler and Pressure Vessel (ASME) Code, Section XI Subsection IWE inspection results for 2012 and notes that water seepage was observed adjacent to electrical penetration #69. The summary indicates that no adverse effects were noted on the penetration; however, no discussion is provided on the effects on the steel containment liner.

Please state whether or not the water leakage impacted the containment liner and if so how the issue was resolved.

Response

The steel containment liner was not impacted by the water leakage at electrical penetration #69. Visual inspection results of the containment wall liner performed during 2012 and subsequent inspection in 2014 confirm that the metal liner at that location is in good condition. (Ref. ISI Reports 12-VT-067 and 14-VT-060).

EMCB RAI-3

Table 4.1-1 of Reference 1 notes that Indian Point Nuclear Generating Unit 2 (IP2) will explore/consider inaccessible degradation-susceptible areas that can be inspected using viable, commercially available NDE methods. Section 4.4.1 of Reference 1 notes that portions of the containment liner are covered by stainless steel insulation panels. Section 5.1.7 of the IP2 Final Safety Analysis Report (FSAR) notes that approximately the first 43 ft. of the liner is covered by insulation. The FSAR further states that the insulation has been designed to be removable by section for inspection of the liner. In order for the U.S. Nuclear Regulatory Commission (NRC) staff to assess the maintenance of inaccessible areas of the containment, please provide the following:

1. A summary of the considerations taken to date regarding inaccessible portions of the containment (both the concrete structure and the liner) and how these considerations were documented. Also explain what will lead to future considerations and how they will be documented.

   Response

   All portions of the steel liner covered with insulation are considered inaccessible for the IWE inspections. The insulation that covers the liner has asbestos material that requires special handling and safety precautions for removal. The insulation has a stainless steel outer jacket that is sealed to prevent any water intrusion. The steel liner is not a structural element of the containment whose sole function is to act as a vapor barrier.

   All portions of the concrete structure that are buried and the concrete at the top of the dome are considered inaccessible for the IWL inspections. There are no vantage points on site

that allow for inspection of the concrete at the top of the dome and there is no access the top of the dome without either aerial inspections or placing someone in a man basket and utilizing a large mobile crane. In 2009, as a result of repair work on the containment vents, such a crane was available and the top of the dome was inspected. No reportable indications were observed. Prior to 2013, remote visual inspections of the dome were performed from the Unit 1 Stack which has since been removed.

Whenever future opportunities exists to inspect these inaccessible areas, such as excavations are performed adjacent to buried portions of the concrete structure or equipment becomes available to have access to the top of the dome, these areas will be inspected. Also, should work inside containment require portions of the liner insulation be removed, IWE inspections will be performed at these areas.

2. An explanation of how it has been determined that the containment liner behind the insulation is acceptable, and how the IWE inspection program will continue to ensure the insulated portions of the liner remain acceptable. If the liner behind the insulation will be inspected based on a sampling plan, include a technical justification for the adequacy of the sample plan. Include a specific discussion of the containment liner-concrete floor interface in the explanation.

   Response

   The liner insulation is protected with a stainless steel jacket that is sealed to prevent water intrusion that could cause corrosion of the liner. The stainless steel jacket is sealed at the 46' elevation floor intersection using a silicon caulk that is inspected each outage to assure the barrier is intact. During the Unit 2 refueling outage in 2000, it was discovered that some of the caulking at the intersection of the stainless steel liner jacket was degraded which provided a potential path for water to get to the liner should an event occur that would cause water to accumulate at these locations. As a result, the insulation was removed at 12 locations and the liner examined in accordance with IWE requirements. Some corrosion was found but NDE results showed that the liner thickness in all areas was greater than the required minimum thickness. Per the IWE requirements, inspections at these locations were performed for 3 successive periods with no additional degradation found. In addition, per License Renewal commitments, a section of the liner at 68' elevation was removed and inspected. The liner was found to be in good condition and NDE results showed the thickness to be within fabrication tolerances. If indications are found in accessible areas of the liner during future IWE inspections that warrant further examinations of the inaccessible portions of the liner, then sections of the insulation will be removed as required to verify the integrity of the liner.

EMCB RAI-4

Section 4.4.1 of Reference 1 provides a high-level summary of the recent American Society of Mechanical Engineers Boiler and Pressure Vessel (ASME) Code, Section XI Subsection IWE inspection results for 2008, 2012, and 2014. In order for the NRC staff to assess the proper and effective implementation of the ASME Section XI, Subsection IWE containment inspection program, please provide the following:

1. A discussion of instances where existence of, or potential for, degraded conditions in inaccessible areas of the concrete containment structure and steel liner were identified and evaluated based on conditions found in accessible areas, as required by Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Paragraph 55a(b)(2)(ix)(A). If there were any instances of such conditions, discuss the findings and corrective actions taken to disposition the findings.

   Response

   As discussed in the response to RAI 3 above, sections of the liner insulation have previously been removed to allow access to the liner in order to resolve conditions identified with the insulation and with the caulking. These examinations confirmed that the liner remains intact and capable of performing its intended safety function. There has been no degradation of the accessible portions of the liner which would question the integrity of the inaccessible portions. Since the inaccessible portions of the liner are protected from the containment environment by the moisture resistant insulation, the absence of unacceptable degradation of the accessible portions ensures that the inaccessible portions remain acceptable.

2. A discussion of the leak chase channel system at IP2 and any relevant operating experience, inspection results, or corrective actions taken as a result of NRC Information Notice 2014-07, "Degradation of Leak-Chase Channel Systems for Floor Welds of Metal Containment Shell and Concrete Containment Metallic Liner." If the accessible portions of the leak chase channel system have not been inspected as part of the IWE Program please provide a technical justification for not inspecting the system.

   Response

   At IP2 the accessible portions of the Leak-Chase Channel system that are cut and capped have not been visually inspected as part of the IWE inspections. As a result of IN 2014-07, these locations have been added to the IWE inspection scope for the upcoming refueling outage currently scheduled for March 2016. If unacceptable degradation is detected during these inspections, it will be documented in the IPEC corrective action program, evaluated and repaired as required prior to restarting from the outage.

EMCB RAI-5

Section 4.4.2 of Reference 1 provides a high-level summary of the recent ASME Code, Section XI Subsection IWL inspection results for 2010. The summary notes that 125 recordable indications were identified during the inspection and none of the indications represented structural concerns. In order for the NRC staff to assess the proper and effective implementation of the ASME Section XI, Subsection IWL containment inspection program, please provide the following:

1. A quantitative description of a representative sample of each type of indication noted during the 2010 ASME Section XI, Subsection IWL inspection.

Response

The 125 locations of visible steel noted in the 2010 IWL inspection were visually inspected and found to be primarily cad welds or miscellaneous steel with minimal corrosion. There were 70 exposed cad welds ranging from 4" to 10" long, two exposed rebar, and 33 miscellaneous pieces of embedded steel from original construction. These 105 locations were photographed with a ruler for scale, prepped by removing any loose concrete that could potentially spall while cleaning the steel surface, and coated to prevent future corrosion. An additional 20 indications were identified (totaling 125 indications) but considered inaccessible due to their location relative to the Main Steam Safety Valves. These 20 indications will remain undisturbed and will continue to be monitored. There was no evidence of any material loss (other than minor surface corrosion) of the steel components and there was no unacceptable spalling of the surrounding concrete. Since these indications were introduced during original construction of the containment and there has been no loss of function as a result of 40 years of service, continuing monitoring of these indications will ensure that the containment structure will remain structurally capable of performing its intended safety function.

2. An explanation of the criteria used to determine an indication was acceptable and did not represent a structural concern.

   Response

   The 125 indications were determined to be acceptable based on the degree of degradation identified during the inspections and based on the IWL-3000 acceptance criteria. The corrosion of the steel components was predominantly surface corrosion and there was no measurable loss of material. Similarly the degree of concrete spalling adjacent to these 125 locations was also minor and considered to have no measurable impact of the load carrying capability of the structure. Indications will continue to be monitored under the IWL program.

REFERENCES:

1. Letter NL-14-128, dated December 9, 2014, from Lawrence Coyle, Entergy Nuclear Operations to U.S. Nuclear Regulatory Commission regarding the Proposed License Amendment Regarding Extending the Containment Type A Leak Rate Testing Frequency to 15 Years, (ADAMS Accession No. ML14353A015)

2. Nuclear Energy Institute (NEI) Topical Report (TR) NEI 94-01, Revision 2-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," October 2008 (ADAMS Accession No. ML100620847)

3. ANSI/ANS-56.8-2002, Reaffirmed August 9, 2011, "Containment System Leakage Testing Requirements"

4. Regulatory Guide (RG) 1.174, Revision 2, dated May, 2011, "An Approach For Using Probabilistic Risk Assessment In Risk-Informed Decisions On Plant Specific Changes To The Licensing Basis"