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

February 23, 2016

Vice President, Operations
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NO. 2 - ISSUANCE OF AMENDMENT RE: EXTENSION OF THE CONTAINMENT INTEGRATED LEAK RATE TEST TO 15 YEARS (CAC NO. MF5382)

Dear Sir or Madam:

The Commission has issued the enclosed Amendment No. 283 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2. The amendment consists of changes to the technical specifications (TSs) in response to your application dated December 9, 2014, as supplemented by two letters dated May 20, 2015, and letters dated June 8 and June 29, 2015.

The amendment revises TS 5.5.14, "Containment Leakage Rate Testing Program," to extend the frequency of the containment integrated leak rate test from once every 10 years to once every 15 years on a permanent basis.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,

Douglas V. Pickett

Douglas V. Pickett, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-247

Enclosures:
1. Amendment No. 283 to DPR-26
2. Safety Evaluation

cc w/encls: Distribution via Listserv

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

ENTERGY NUCLEAR INDIAN POINT 2, LLC

AND ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-247

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

AND TECHNICAL SPECIFICATIONS

Amendment No. 283
License No. DPR-26

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Entergy Nuclear Operations, Inc. (the licensee) dated December 9, 2014, as supplemented by two letters dated May 20, 2015, and letters dated June 8 and June 29, 2015, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-26 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A, B and C, as revised through Amendment No. 283, are hereby incorporated in the license. ENO shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Travis L. Tate, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the License and
Technical Specifications

Date of Issuance: February 23, 2016

ATTACHMENT TO LICENSE AMENDMENT NO. 283

FACILITY OPERATING LICENSE NO. DPR-26

DOCKET NO. 50-247

Replace the following page of the License with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page	Insert Page
3	3

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page	Insert Page
5.5-14	5.5-14

instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) ENO pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; Amdt. 42 10-17-78

(5) ENO pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility. Amdt. 220 09-06-01

C. This amended license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

ENO is authorized to operate the facility at steady state reactor core power levels not in excess of 3216 megawatts thermal Amdt. 241 10-27-04

(2) Technical Specifications

The Technical Specifications contained in Appendices A, B, and C, as revised through Amendment No. 283, are hereby incorporated in the license. ENO shall operate the facility in accordance with the Technical Specifications.

(3) The following conditions relate to the amendment approving the conversion to Improved Standard Technical Specifications:

1. This amendment authorizes the relocation of certain Technical Specification requirements and detailed information to licensee controlled documents as described in Table R, "Relocated Technical Specifications from the CTS," and Table LA, "Removed Details and Less Restrictive Administrative Changes to the CTS" attached to the NRC staff's Safety Evaluation enclosed with this amendment. The relocation of requirements and detailed information shall be completed on or before the implementation of this amendment.

5.5 Programs and Manuals

5.5.13 Safety Function Determination Program (SFDP) (continued)

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.5.14 Containment Leakage Rate Testing Program

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with NEI 94-01, Revision 2A, "Industry Guidelines for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," October 2008.

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is assumed to be the containment design pressure of 47 psig.

c. The maximum allowable containment leakage rate, L_a, at P_a, and 271°F shall be 0.1% of containment steam air weight per day.

d. Leakage rate acceptance criteria:

1. Containment leakage rate acceptance criterion is 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and ≤ 0.75 L_a for Type A tests.

2. Air lock testing acceptance criteria shall be established to ensure that limits for Type B and C testing in Technical Specification 5.5.14.d.1 are met.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 283

TO FACILITY OPERATING LICENSE NO. DPR-26

ENTERGY NUCLEAR INDIAN POINT 2, LLC

AND ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-247

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

1.0 INTRODUCTION

By application dated December 9, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14353A015), as supplemented by two letters dated May 20, 2015 (ADAMS Accession Nos. ML15149A137 and ML15149A139), and letters dated June 8 and June 29, 2015 (ADAMS Accession Nos. ML15163A166 and ML15189A026, respectively), Entergy Nuclear Operations, Inc. (Entergy, the licensee) submitted a request for changes to the Indian Point Nuclear Generating Unit No. 2 (IP2) Technical Specifications (TSs). The amendment would revise TS 5.5.14, "Containment Leakage Rate Testing Program," to extend the frequency of the containment integrated leak rate test (ILRT) from once every 10 years to once every 15 years on a permanent basis.

The supplemental letters dated May 20, June 8, and June 29, 2015, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC) staff's proposed no significant hazards consideration determination as published in the *Federal Register* on March 17, 2015 (80 FR 13905).

2.0 REGULATORY EVALUATION

The following explains the applicability of General Design Criteria (GDC) for IP2. The construction permit for IP2 was issued by the Atomic Energy Commission (AEC) on October 14, 1966, and the operating license was issued on September 28, 1973. The plant GDC are discussed in the Updated Final Safety Analysis Report (UFSAR) Chapter 1.3, "General Design Criteria," with more details given in the applicable UFSAR sections. The AEC published the final rule that added Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," in the *Federal Register* (36 FR 3255) on February 20, 1971, with the rule effective on May 21, 1971. In accordance with an NRC Staff

Requirements Memorandum from S. J. Chilk to J. M. Taylor, "SECY-92-223 - Resolution of Deviations Identified During the Systematic Evaluation Program," dated September 18, 1992 (ADAMS Accession No. ML003763736), the Commission decided not to apply the Appendix A GDC to plants with construction permits issued prior to May 21, 1971. Therefore, the GDC which constitute the licensing bases for IP2 are those in the UFSAR.

As discussed in the UFSAR, the licensee for IP2 has made some changes to the facility over the life of the unit that committed to some of the GDCs from 10 CFR Part 50, Appendix A. The extent to which the Appendix A GDC have been invoked can be found in specific sections of the UFSAR and in other IP2 licensing basis documentation, such as license amendments.

Additional documents that the NRC staff based its review upon included the following:

Section 50.54(o) of 10 CFR requires that the primary reactor containments for water cooled power reactors shall be subject to the requirements set forth in Appendix J to 10 CFR Part 50, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors". Appendix J to 10 CFR Part 50, includes two options: "Option A – Prescriptive Requirements," and "Option B – Performance-Based Requirements," either of which can be chosen for meeting the requirements of the Appendix. The testing requirements in 10 CFR Part 50, Appendix J ensure that (a) leakage through containments or systems and components penetrating containments does not exceed allowable leakage rates specified in the TS; and (b) the integrity of the containment structure is maintained during the service life of the containment.

By application dated August 7, 1996 (ADAMS Accession No. ML10035304), the licensee for IP2 submitted a TS change request to implement 10 CFR Part 50, Appendix J Option B. The NRC staff approved this request in Amendment No. 190 issued by letter dated April 10, 1997 (ADAMS Accession No. ML003778846). With the approval of the amendment, IP2 transitioned to a performance-based ten year frequency for the Type A tests and implemented Option B for meeting the requirements of 10 CFR Part 50, Appendix J.

Option B of 10 CFR Part 50, Appendix J specifies performance-based requirements and criteria for preoperational and subsequent leakage-rate testing. These requirements are met by the performance of: Type A tests, or ILRTs, to measure the containment system overall integrated leakage rate; Type B pneumatic tests to detect and measure local leakage rates across pressure-retaining or leakage-limiting boundaries such as penetrations; and Type C pneumatic tests to measure containment isolation valve leakage rates. After the preoperational tests, these tests are required to be conducted at periodic intervals based on the historical performance of the overall containment system (for Type A tests), and based on the safety significance and historical performance of each boundary and isolation valve (for Type B and C tests) to ensure integrity of the overall containment system as a barrier to fission product release.

The regulations in 10 CFR 50.55a "Codes and Standards," contain the Containment Inservice Inspection (CISI) requirements that, in conjunction with the requirements of Appendix J, ensure the continued leak-tight and structural integrity of the containment during its service life.

The regulations in 10 CFR 50.65(a), "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," states, in part, that the licensee "...shall monitor the

performance or condition of structures, systems, or components, against licensee-established goals, in a manner sufficient to provide reasonable assurance that these structures, systems, and components, as defined in paragraph (b) of this section, are capable of fulfilling their intended functions. These goals shall be established commensurate with safety and, where practical, take into account industrywide operating experience."

Nuclear Energy Institute (NEI) Topical Report (TR) 94-01, Revision 2-A, "Industry Guideline for Implementing Performance-Based Option of 10 CR Part 50, Appendix J" (November 19, 2008) (ADAMS Accession No. ML100620847), describes an NRC-approved approach for implementing the optional performance-based requirements of Option B described in 10 CFR Part 50, Appendix J, which includes provisions for extending Type A ILRT intervals to up to 15 years and incorporates the regulatory positions stated in NRC Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak-Rate Testing Program," dated September 1995 (ADAMS Accession No. ML003740058). It delineates a performance-based approach for determining Type A, Type B, and Type C containment leakage rate surveillance testing frequencies. This method uses industry performance data, plant-specific performance data, and risk insights in determining the appropriate testing frequency. NEI TR 94-01, Revision 2-A, also discusses the performance factors that licensees must consider in determining test intervals.

The Electric Power Research Institute (EPRI) Report No. 1009325, Revision 2-A, "Risk Impact Assessment of Extended Integrated Leak Rate Testing Intervals" (October 2008) (ADAMS Accession No. ML14024A045), provides a risk impact assessment for optimized ILRT intervals of up to 15 years, utilizing current industry performance data and risk-informed guidance, primarily Revision 1 of RG 1.174, "An Approach for using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis." EPRI Report No. 1009325, Revision 2-A, determined that there is very little risk associated with extension of ILRT intervals to 15 years.

In an NRC Safety Evaluation (SE) dated June 25, 2008 (ADAMS Accession No. ML081140105), the staff determined that NEI TR 94-01, Revision 2, and EPRI Report No. 1009325, Revision 2 described an acceptable approach for implementing the optional performance-based requirements of Option B to 10 CFR Part 50, Appendix J. This guidance included provisions for extending Type A ILRT intervals to up to 15 years and incorporated the regulatory positions stated in RG 1.163. Limitations and conditions of this approval were included in Section 4.0 of the SE approving the NEI and EPRI documents for referencing in licensing applications.

3.0 TECHNICAL EVALUATION

Description of the IP2 Primary Containment

The IP2 containment is a reinforced concrete cylinder with a hemispherical dome and a steel liner with a thickness that varies from 0.25 in. to 0.75 in. depending on location. The cylinder walls are 4.5 ft. thick and the dome is 3.5 ft. thick. The containment is supported on a 9 ft. thick concrete base mat. The design objective of the containment is to contain all radioactive material following a loss of coolant accident. The structure serves as both a biological shield and a pressure container. The containment structure is designed to withstand several loading conditions and credible load combinations. The major combinations are the pressure and

temperature conditions associated with a reactor coolant system failure coincident with an earthquake or high wind event.

Integrated Leakage Rate Test, Type A Test Frequencies

The two most recent Type A ILRTs at IP2 were performed in June 1991 and April 2006. Amendment No. 232 to IP2, issued on August 5, 2002 (ADAMS Accession No. ML021860178), allowed a one time extension of the Type A ILRT test interval to 15 years, but the long term ILRT test interval remained at 10 years. Both Type A tests were performed consistent with the definition of P_a and both were successful in that the "as found" test results were less than 1.0 L_a, where both P_a and L_a are defined in IP2 TS 5.5.14 "Containment Leakage Rate Testing Program".

Type A, B, and C leak tests must be performed in accordance with the "Containment Leakage Rate Testing Program" and the test results must not exceed the value of L_a with margin, as specified in TS 5.5.14.d. Option B also requires that a general visual inspection be performed on the accessible interior and exterior surfaces of the containment structure for structural deterioration, which may affect the containment leak-tight integrity, prior to each Type A test and at a periodic interval between tests based on the performance of the containment system.

Entergy proposes to extend the interval for the primary containment ILRT to no longer than 15 years from the last ILRT. The last IP2 ILRT was completed in April 2006 and the next test is currently due during April 2016. The proposed amendment would extend the period for the next IP2 ILRT to April 2021.

Appendix J, Option B, Section V.B.3 of 10 CFR Part 50, requires that the RG or other implementation document used by a licensee to develop a performance-based leakage-testing program must be included, by general reference, in the plant TSs. Furthermore, the submittal for TS revisions must contain justification, including supporting analyses, if the licensee chooses to deviate from methods approved by the Commission and endorsed in a RG.

Licensee's Proposed Changes

The current IP2 TS 5.5.14, "Containment Leakage Rate Testing Program," requires that leakage rate testing be performed as required by 10 CFR Part 50, Appendix J, Option B, as modified by approved exemptions, and in accordance with the guidelines contained in NRC RG 1.163. This RG endorses, with certain exceptions, NEI TR 94-01, Revision 0 (ADAMS Accession No. ML11327A025), "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," dated July 21, 1995.

The IP2 TS 5.5.14, "Containment Leakage Rate Testing Program" currently states:

> A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995.

The proposed amendment would revise IP2 TS 5.5.14 to state,

> A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with NEI 94-01, Revision 2A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," October 2008.

The proposed change would revise TS 5.5.14 by replacing the reference to RG 1.163 with a reference to NEI 94-01, Revision 2-A, as the implementation document. Consistent with the guidance in NEI 94-01, Revision 2-A, the licensee justified the proposed change based on historical plant-specific containment leakage testing program results and CISI program results, as supported by a plant-specific risk assessment.

As required by 10 CFR 50.54(o), the IP2 containment is subject to the requirements set forth in 10 CFR Part 50, Appendix J. Option B of Appendix J requires that test intervals for Type A, B, and C testing be determined by using a performance-based approach. Currently, the IP2 10 CFR Part 50 Appendix J Testing Program Plan is based on RG 1.163, which endorses NEI 94-01, Revision 0. The license amendment request (LAR) proposes to revise the IP2 10 CFR Part 50, Appendix J Testing Program Plan by implementing the guidance in NEI 94-01, Revision 2-A.

3.1 Compliance with NEI TR 94-01, Revision 2-A

By letter dated June 25, 2008, (ADAMS Accession No. ML081140105), the NRC staff published an SE that approved, with limitations and conditions, NEI TR 94-01, Revision 2. In the SE, the staff concluded that NEI 94-01, Revision 2, describes an acceptable approach for implementing the optional performance-based requirements of 10 CFR Part 50, Appendix J, and is acceptable for referencing by licensees proposing to amend their TSs with regards to containment leakage rate testing, subject to the limitations and conditions noted in Section 4.0 of the SE. Consistent with NRC policy on approving topical reports for use in referencing in licensing applications, the industry typically resubmits the topical report with the suffix "-A" denoting that the document has been approved by the NRC. Accordingly, NEI TR 94-01 Revision 2-A was submitted by NEI to the NRC on November 19, 2008 (ADAMS Accession No. ML100620847). With Revision 2-A, the topical report was revised to incorporate the June 25, 2008, NRC Final Safety Evaluation. Entergy indicated that IP2 will meet the limitations and conditions of NEI TR 94-01 Revision 2-A. Therefore, discussions regarding these documents in this SE (i.e. referencing Revisions 2 and 2-A) should be considered synonymous.

As previously discussed, the NRC staff concluded that the use of NEI TR 94-01, Rev 2-A, is acceptable for referencing by licensees proposing to amend their TSs to permanently extend the ILRT surveillance interval to 15 years, provided they satisfy the six conditions identified in Section 4.1 of the SE. The six conditions identified in the staff's SE and the staff's evaluation of how the licensee satisfied each condition for IP2 is described below.

Condition 1

For calculating the Type A leakage rate, the licensee should use the definition in NEI TR 94-01, Rev 2-A, in lieu of that in ANSI/ANS-56.8-2002.

In Section 4.1 of the application, the licensee noted that implementation of NEI 94-01, Revision 2-A will require the use of the definition of "performance leakage rate" from Section 5.0 of NEI 94-01.

Condition 1 – NRC Staff Evaluation

On the basis that the licensee committed to comply with the definition in Section 5 of NEI 94-01, Revision 2-A, the NRC staff finds that the licensee has adequately addressed Condition 1.

Condition 2

The licensee submits a schedule of containment inspections to be performed prior to and between Type A tests.

Section 9.2.3.2 of NEI 94-01, Revision 2-A, "Supplemental Inspection Requirements," states that in order to provide a "continuing supplemental means of identifying potential containment degradation, a general visual examination of accessible interior and exterior surfaces of the containment for structural deterioration that may affect the containment leak tight integrity 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 of the Type A test is extended to 15 years. It is recommended that these inspections be performed in conjunction, or coordinated, with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, Subsection IWE/IWL required examinations."

Table 4.4.2 in Section 4.4 of the licensee's application 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 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 only be two visual examinations between ILRT tests, plus the examination conducted prior to the test, as opposed to the required visual inspections during three other outages. To address this, the NRC staff issued a request for additional information (RAI) on March 17, 2015 (ADAMS Accession No. ML15072A417), requesting the licensee to explain how the stated schedule met the requirements of NEI 94-01, Revision 2. In its response of May 20, 2015 (ADAMS Accession No. ML15149A139), the licensee noted that in addition to the ASME Section XI, Subsection IWL inspections, external containment structural visual inspections are conducted every two years. These inspections include the accessible portions of the external containment surfaces, the containment penetrations, and the hatches. The licensee further explained that at least one of the inspections is performed prior to the Type A test.

Condition 2 – NRC Staff Evaluation

The NRC staff reviewed the information provided and noted that in addition to the required ASME Section XI, Subsection IWL concrete inspections, the licensee conducts visual inspections of the external containment surface every two years and prior to Type A tests. This frequency ensures the required three inspections between Type A tests will be conducted on the exterior, concrete portions of the containment. Subsection IWE of ASME Section XI, requires inspections of the steel liner on a frequency of three and 1/3 years, which ensures the liner will be inspected at least three times between Type A tests. The licensee will conduct those inspections, as required.

Therefore, on the basis that the licensee's schedule of general visual examination results in at least three examinations between Type A tests and one examination immediately prior to the Type A test for both containment concrete and metallic liner surfaces, the NRC staff finds that the licensee's inspection schedule plan meets the general visual examination requirements in NEI 94-01, Revision 2-A, and 10 CFR Part 50 Appendix J, Option B, and therefore, satisfies Condition 2.

Condition 3

The licensee addresses the areas of the containment structure potentially subjected to degradation.

Section 3.1.3 of the NRC staff's SE for NEI 94-01, Revision 2, notes that licensees referencing the NEI document in an application to amend their TS, should also explore/consider inaccessible degradation-susceptible areas in plant-specific inspections, using viable, commercially available nondestructive examination (NDE) methods (such as boroscopes, guided wave techniques, etc.– see Report ORNL/NRC/LTR-02/02, "Inspection of Inaccessible Regions of Nuclear Power Plant Containment Metallic Pressure Boundaries," June 2002 (ADAMS Accession No. ML061230425). The NRC staff's intent in the SE was that licensees should explore and consider NDE techniques as these advanced technologies become commercially available and viable for implementation in the future. While recognizing that these techniques may not be fully commercially viable at the time the SE was written, the staff emphasized that the issue related to inaccessible areas is especially important in light of several instances of significant through-wall containment liner corrosion degradations that have been identified in the prior decade, where the corrosion was initiated at the inaccessible concrete-steel interface.

In its application, the licensee stated that general visual examinations of accessible interior and exterior surfaces of the containment are conducted per the Containment Inservice Inspection Plan, which implements the requirements of ASME Code Section XI, Subsections IWE and IWL. The licensee further stated its intent to explore and consider inaccessible areas susceptible to degradation that can be inspected using viable, commercially available methods.

In supplemental information provided by letters dated May 20, 2015, and June 29, 2015 (ADAMS Accession Nos. ML15149A139 and ML15189A026, respectively), the licensee stated that portions of the liner are made inaccessible by stainless steel insulation panels which are sealed to prevent water intrusion from contacting the liner. In 2000, degradation was identified

at the sealant between the insulation and the concrete floor at the 46 foot elevation. To address this issue, the licensee removed 12 panels and conducted inspections of the liner which showed the liner thickness was greater than the minimum required thickness. The moisture barrier at the interface was also repaired to prevent future water intrusion. These areas were inspected during three successive inspection periods and no additional degradation was identified. In addition, the licensee noted that a portion of the insulation was removed at the 68 foot elevation and no signs of degradation were identified. The licensee also noted that in 2008, several portions of the liner insulation had panels where the stainless steel jacket had curled up from the adjacent panel seams. During the repair, the panels were inspected for indications of degradation (i.e., moisture or rust staining) and no indications were identified. Finally, the licensee noted that if the liner insulation is removed in the future, IWE inspections will be performed on the exposed portions of the containment liner.

Condition 3 – NRC Staff Evaluation

The NRC staff notes that the licensee will consider inaccessible areas susceptible to degradation that can be inspected using viable, commercially available methods and will inspect inaccessible areas whenever they are made accessible due to other maintenance. The staff also notes that the licensee has properly addressed past indications of degradation and has not identified any recent concers that would indicate degradation in inaccessible areas. Therefore, the staff finds that the licensee has adequately addressed Condition 3.

Condition 4

The licensee addresses any tests and inspections performed following major modifications to the containment structure, as applicable.

The licensee noted that the design change process provides a disciplined approach for addressing any testing or inspection requirements following major modifications. The process evaluates requirements from ASME Section XI as well as 10 CFR Part 50, Appendix J.

Condition 4 – NRC Staff Evaluation

The NRC staff notes that the licensee's design change process reviews the requirements of ASME Section XI and 10 CFR Part 50, Appendix J and will ensure that necessary testing is completed after major containment modifications. The staff finds that the licensee has adequately addressed Condition 4. Furthermore, the staff notes that the licensee has already replaced its steam generators, which is a common industry modification that would lead to a 'major modification' to the containment.

Condition 5

The normal Type A test interval should be less than 15 years. If a licensee has to utilize the provision of Section 9.1 of NEI TR 94-01, Revision 2-A, related to extending the ILRT interval beyond 15 years, the licensee must demonstrate to the NRC staff that it is an unforeseen emergent condition.

The licensee stated that it is adopting the definition of a Type A interval as defined in Section 9.2.2 of NEI 94-01 and will use this definition to schedule upcoming tests. The licensee also acknowledged Regulatory Issue Summary (RIS) 2008-27, "Staff Position on Extension of the Containment Type A Test Interval Beyond 15 Years Under Option B of Appendix J of 10 CFR Part 50" dated December 8, 2008 (ADAMS Accession No. ML080020394), which summarizes the staff position regarding extending Type A intervals beyond the 15 year limit.

Condition 5 – NRC Staff Evaluation

The NRC staff notes that the licensee has stated that it will schedule its Type A intervals based on the definition of interval contained in Section 9.2.2 of NEI 94-01, Revision 2-A, which states that a test interval begins upon completion of a Type A test and ends at the start of the next test. This indicates the licensee will schedule the Type A tests within the 15 year limit and will not extend the interval beyond 15 years. Therefore, the NRC staff finds that the licensee has adequately addressed Condition 5.

Condition 6

For plants licensed under 10 CFR Part 52, applications requesting a permanent extension of the ILRT surveillance interval to 15 years should be deferred until after the construction and testing of containments for that design have been completed and applicants have confirmed the applicability of NEI TR 94-01, Revision 2, and EPRI Report No. 1009325, Revision 2, including the use of past containment ILRT data.

Condition 6 – NRC Staff Evaluation

The NRC staff notes that IP2 is an operating reactor currently licensed under 10 CFR Part 50. Therefore, "Condition 6" does not apply.

NRC Staff's Overall Evaluation of the Licensee's Adoption of NEI 94-01, Revision 2-A

Based on the above evaluation of each condition, the NRC staff determined that the licensee has adequately addressed the six conditions identified in Section 4.1 of the NRC SE for NEI 94-01, Revision 2-A. Therefore, the staff finds it acceptable for IP2 to adopt NEI 94-01, Revision 2-A, as the implementation document in its TS 5.5.14, "Containment Leakage Rate Testing Program."

3.2 Additional Deterministic Considerations

IP2 Type A Test Performance History

Per TS 5.5.14.c, IP2 was designed for a maximum allowable containment leakage rate, L_a, of 0.1% by weight of containment steam air weight per 24 hours at the calculated peak pressure, P_a, at 271°F. Per TS 5.5.14.b, the calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is assumed to be the containment design pressure of 47 psig.

As documented in the application, Attachment 1, Section 4.3.1, and summarized in Table 1 below, since the Summer of 1979 a total of five ILRTs have been performed on IP2, all with satisfactory results.

Table 1
Historical IP2 Type A Tests

Date	As found Leakage (% Containment air weight per day)	Test Pressure (psia)
April, 2006	0.0636	60.5
June, 1991	0.0478	61.7
December, 1987	0.0342	62.9
September, 1984	0.0320	65.6
August, 1979	0.0260	62.7

Technical Specification 5.5.14.d.1 establishes the maximum leakage limit following completion of a Type A ILRT as less than or equal to .75 L_a, which equals 0.075% of containment air weight per day. The IP2 containment was designed for a leakage rate L_a not to exceed 0.1% by weight of containment air per 24 hours at the calculated peak pressure, P_a. Therefore, there has been substantial margin to the "As found" performance limit as described in TS 5.5.14.c of L_a equal to 0.1% weight/day.

The NRC staff notes that the last sentence of Section 9.2.3 "Extended Test Intervals" of NEI 94-01 Revision 2-A reads "*In the event where previous Type A tests were performed at reduced pressure (as described in 10 CFR 50, Appendix J, Option A), at least one of the two consecutive periodic Type A tests shall be performed at peak accident pressure (P_a).*" As can be seen in Table 1 above, the last two Type A tests were performed at a pressure of greater than or equal to 60.5 psia. Therefore, both tests were performed at a pressure higher than the peak calculated design basis internal accident pressure, P_a, which per TS 5.5.14.b for IP2 is assumed to be the containment design pressure of 47 psig. Marginal allowance for P_a is defined by Section 3.2.12 of ANSI 56.8-2002. Entergy verified the accuracy of this information in its response to SCVB-RAI-1 in its letter dated June 8, 2015 (ADAMS Accession No. ML15163A166).

In SCVB-RAI-4 of the licensee's letter dated June 8, 2015, the NRC staff noted that the historical trend indicates that consistently, for all five historical ILRTs, the "As found Leakage" is on a continuous trend towards eclipsing the IP2 TS 5.5.14.d.1 "As left" leakage rate acceptance criteria of < $0.75L_a$ (i.e. 0.075% containment weight per day). However, an apparent ILRT results trend requires additional examination to determine if it would have any bearing on the acceptability of extending an ILRT interval. These tests are generally infrequent, involve differences in penetration alignment, and the impact of penetration leakage from one ILRT to the next may involve differences in instrumentation used, test durations, test pressure, ambient conditions, change in definition of performance leakage, along with additional conditions that can yield differences in results that make trending difficult. However, the staff requested that Entergy explain why this phenomenon was occurring and what is IP2's long term corrective action plan to arrest or reverse this trend.

Entergy's response to SCVB-RAI-4 Part (1) stated:

> Entergy does not believe that the IP2 Type A ILRT test results since August 1979 indicate that the IP2 containment is degrading or constitutes an adverse trend requiring corrective action. ...
>
> All of the IP2 ILRT "as found" test results have met the 10 CFR 50 Appendix J criterion of $1.0L_a$. This demonstrates that the overall containment leakage (Type A, Type B and Type C) has been maintained at leakage rates less than the assumed leakage rate in the plant accident analysis. The "as left" criterion for the containment leakage (Type A, Type B and Type C) is $0.75L_a$, a lower value that assures that that there is margin for potential degradation that could increase the containment leakage rate before the next ILRT is performed. Such degradation historically has occurred primarily in Type B and C penetrations, which is why these penetrations are tested at a greater frequency than the ILRT.
>
> Even if the past ILRT results are extrapolated through 2021, this would still not exceed the "as found" acceptance criteria of $1.0L_a$. Furthermore, the IP2 Containment Leakage Rate Testing Program would require the "as left" criteria to be met prior to plant restart. Note that the approved program also provides for the case where an unacceptable (i.e., "as found" leakage $>1.0L_a$) ILRT were to be performed. NEI 94-01, Revision 2-A states: *"If the Type A performance leakage rate is not acceptable,* the performance criterion is not met, and a determination should be performed to identify the cause of unacceptable performance and determine appropriate corrective actions. Once completed, acceptable performance should be reestablished by demonstrating an acceptable performance leakage rate during a subsequent Type A test before resuming operation and by performing another successful Type A test within 48 months following the unsuccessful Type A test."
>
> As noted above, Entergy does not believe that the IP2 containment is degrading or that the IP2 Type A ILRT test results since August 1979 constitute an adverse trend requiring corrective action. Therefore, Entergy is not planning to implement any further corrective actions because the Type A, B, and C leakage rates continue to meet the 10 CFR 50, Appendix J limits. If the limits are not met, the program requires corrective actions and more frequent Type A, Type B or Type C testing.

The NRC staff notes that Entergy's response to SCVB-RAI-4 Part (3) also included the cumulative as-left minimum pathway leakage rate (MNPLR) data for all Type B and Type C pathway test values that constitute a part of the total ILRT performance leakage rate (i.e. "As found Leakage") values for the ILRTs from 1984 through 2006. From this information, the staff was able to derive a non-penetration related leakage rate value from the results of each of the four most recent ILRTs. This is presented in the following Table 2:

Table 2
Containment Leakage – Non-Penetration Related Contribution

ILRT Date	Type A "As found" Leakage (%Containment weight per day)	Type B and Type C Cumulative MNPLR Leakage Rates (cc/min)	Containment Leakage Rate (Non-Penetration Related) (cc/min)
April 2006	0.0636	46,593.93	90,457.71
June 1991	0.0478	-0-	103,004.22
December 1987	0.0342	894.09	72,803.58
September 1984	0.0320	16,390.48	52,566.32

As presented above, the ILRT data with respect to the "Containment Leakage Rate (Non-Penetration Related)" does not indicate a definitive trend that would lead towards exceeding the ILRT performance criteria. Rather, the data in Table 2 supports the licensee's statement that *"Entergy does not believe that the IP2 Type A ILRT test results since August 1979 indicate that the IP2 containment is degrading or constitutes an adverse trend requiring corrective action."*

As required by NEI 94-01, Revision 2-A, Section 9.1.2, further extensions in test intervals are contingent upon two consecutive successful periodic Type A tests and the requirements as stated therein in Section 9.2.3. Past IP2 ILRT results have confirmed that the containment is acceptable with respect to the design criterion of 0.1% leakage of containment air weight (L_a) at the design basis loss of coolant accident pressure (P_a). The last two IP2 ILRT tests were:

1. The ILRT in April 2006 had a measured containment leak rate (L_{tm}) at the test pressure of 60.5 psia was 0.0636% containment air weight/day with a 95% confidence level.

2. The ILRT in June 1991 had a measured containment leak rate (L_{tm}) at the test pressure of 61.7 psia was 0.0478% containment air weight/day with a 95% confidence level.

Since the last two Type A "as found" tests for IP2 had "as found" test results of less than $1.0L_a$, a test frequency of 15 years in accordance with NEI 94-01 Revision 2-A would be acceptable.

Based on the above IP2 ILRT test results and the licensee's responses to SCVB RAI-1 and SCVB RAI-4, the NRC staff concludes that the requirements of Sections 9.1.2 and 9.2.3 of NEI 94-01, Revision 2-A have been satisfied.

IP2 Type B Test and Type C Test Performance History

NUREG-1493, "Performance-Based Containment Leak Test Program," (ADAMS Accession No. 9510200161) indicates that Type B and Type C tests generally identify the vast majority of all containment leakage paths. The LAR adopts the guidance in NEI 94-01, Revision 2-A, in place of NEI 94-01, Revision 0, but otherwise does not affect the scope, performance, or frequency of Type B or Type C tests. Type B and Type C testing will continue to provide a high degree of assurance that containment leakage rates are maintained well within limits.

In LAR Attachment 1, Table 4.3-1, the licensee provided the cumulative minimum pathway combined Type B and Type C leakage test total from the IP2 refueling outage of Spring, 2006, when the Type A test was last performed. Also provided were the subsequent combined "as found" Type B and Type C test values during each successive outage since the last Type A test. This data is reflected in the following Table 3.

Table 3
IP2 Type B and Type C Test Results Since 2006

Date	Type B & Type C As-Found Minimum Pathway Leakage (cc/min)	L_a (cc/min)	Fraction[(Type B & Type C As-Found) / L_a]	Fraction [(Type B & Type C As-Found)/(.6L_a)]
April 2006	46,593.93	215490	0.216	0.360
April 2008	54,659.95	215490	0.254	0.423
April 2010	28,880.44	215490	0.134	0.223
April 2012	47,304.18	215490	0.220	0.366
March 2014	79,176.85	215490	0.367	0.612

For containment penetrations subject to Type B and C testing since the beginning of 2013, LAR Table 4.3-2 listed: (a) the test frequency; (b) the last test date; (c) the next test date; and (d) the "as left" leakage. In SCVB-RAI-2, the NRC staff requested additional information about the test results of LAR Table 4.3-2. In particular, the staff issued an RAI that requested additional details about: (a) which Type B and Type C local leak rate tests (LLRTs) failed; (b) what corrective actions were performed; and (c) what historical test failures have been repetitive from the total population of Type B penetrations and Type C isolation valves.

In its response to the NRC staff's RAI dated June 8, 2015, the licensee provided comprehensive details (e.g. identification of components involved, corrective actions, leakage rate acceptance criteria) regarding LLRT failures that occurred in the total population of Type B penetrations and Type C isolation valves listed in LAR Table 4.3-2. The only repetitive LLRT failure was the reactor coolant drain tank (RCDT) nitrogen supply line valve CIV 1616 (1") during refueling outages 2R20 in 2012 and 2R21 in 2014. In its response to SCVB-RAI-2, Entergy stated that during refueling outage 2R21 in 2014, the leak rate through RCDT nitrogen supply line CIV 1616 was 21,000 cc/min, which exceeded the acceptance criteria of 400 cc/min. The staff notes that the acceptance criterion is an administrative limit and a higher value can be accepted without repair on an individual case basis when the overall containment leakage remains within the 10 CFR Part 50 Appendix J limit. The failure to meet the acceptance criteria for this valve was accepted by the licensee because the overall leakage remained within the 10 CFR Part 50, Appendix J limit.

IP2 first identified a problem with valve 1616 in 2012 during refueling outage 2R20 and initiated a corrective action for a valve repair (i.e. not rework) during 2R21. The valve repair during 2R21 did not resolve the problem of excessive leakage. The licensee noted that:

> An investigation indicated that the likely cause of the excessive leakage during the 2R21 post work test was damage to the valve internals caused by the welding process during the repair. Since the higher leak rate did not adversely

impact the ability of the containment to perform its design function (i.e., meet the leak rate limits of 10 CFR 50, Appendix J), valve 1616 was accepted and corrective actions have been implemented to ensure that the repair currently scheduled for the 2016 refueling outage 2R22 will not result in similar damage.

The NRC staff notes that the licensee's RAI response regarding valve 1616 provides an adequate explanation for Table 3's notably larger "As-Found" leakage rate of 79,176.85 cc/min obtained during March 2014. Technical Specification 5.5.14.d.1 states that the acceptance criteria for the as-left combined Type B and Type C leakage rate be < 0.60 L_a. The staff notes that even with valve 1616 leaking at 21,000 cc/min, the overall combined total of Type B and Type C leakage continues to satisfy the TS 5.5.14.d.1 value of < 0.60 L_a. Given these facts and based on the licensee's response to RAI-SCVB-2, the staff concludes that IP2's TS 5.5.14 "Containment Leakage Rate Testing Program" is adequately managing IP2 containment leakage.

3.2.1 Conclusions Regarding Additional Deterministic Considerations

The NRC staff reviewed the information related to the licensee's proposal to extend the 10 CFR Part 50, Appendix J test intervals, including leakage test results and ASME Code inspection results. The results provided in LAR Attachment 1, Section 4.3.1, indicate that the previous two consecutive Type A tests at IP2 were successful with containment performance leakage rates less than the maximum allowable containment leakage rate of 0.1% by weight of containment steam air weight per 24 hours (1.0 L_a at P_a). Therefore, the staff finds that the performance history of Type A tests supports extending the current ILRT interval to 15 years.

The NRC staff reviewed the local leak rate summaries provided in Table 3 above and noted that the aggregate results for all the recent Type B and C tests were well below the acceptance criteria. The staff reviewed the corrective actions taken for the valves that failed the most recent cumulative tests from the years 2013 and 2014, as reflected in LAR Attachment 1, Table 4.3-2. Based upon the corrective actions documented in Entergy's response to RAI-SCVB-2, the staff concludes that IP2's TS 5.5.14 "Containment Leakage Rate Testing Program" is adequately managing the IP2 containment leakage potential.

With respect to the IP2 LLRT "Containment Leakage Rate Testing Program", the NRC staff concludes that:

(a) the licensee's supplementary letter dated June 8, 2015, demonstrates acceptable LLRT performance;
(b) the cumulative Type B and C test results continue to satisfy the acceptance criterion of TS 5.5.14.d.1; and
(c) the licensee has a corrective action program that appropriately addresses poor performing valves.

In summary, the NRC staff finds that the licensee has adequately implemented its Containment Leakage Rate Testing Program (i.e. Type A, B, and C leakage tests) for the IP2 containment structure. The results of past ILRTs, recent LLRTs, and the containment visual inspections demonstrate acceptable performance of the IP2 containment and demonstrate that the structural and leak-tight integrity of the containment structure is adequately maintained. Thus,

the staff has determined that there is reasonable assurance that the structural and leak-tight integrity of the IP2 containment will continue to be maintained, without undue risk to public health and safety, with the current Type A interval extended to 15 years on a permanent basis. The NRC staff further finds that the information provided by Entergy in its December 9, 2014, LAR, as supplemented, addresses the limitations and conditions to NEI 94-01, Revision 2-A.

Based on the above evaluation, the NRC staff finds that there are no significant increases in risk or reductions in safety resulting from the requested ILRT interval extension, beyond those already considered in the establishment of the intervals allowed by RG 1.163 and NEI 94-01, Revision 2-A. Further, the IP2 containment has a satisfactory leakage rate history. Therefore, the staff concludes that the requested TS change, increasing the Type A test interval permanently to 15 years, is acceptable.

3.3 Additional Probabilistic Risk Considerations

Section 9.2.3.1, "General Requirements for ILRT Interval Extensions beyond Ten Years," of NEI 94-01, Revision 2-A, states that plant-specific confirmatory analyses are required when extending the ILRT interval beyond ten years. Section 9.2.3.4, "Plant-Specific Confirmatory Analyses," of NEI 94-01 states that the assessment should be performed using the approach and methodology described in EPRI TR 1009325, Revision 2-A, "Risk Impact Assessment of Extended Integrated Leak Rate Testing Intervals."[1] The analysis is to be performed by the licensee and retained in the plant documentation and records as part of the basis for extending the ILRT interval.

In the NRC SE dated June 25, 2008, the NRC staff found the methodology in NEI 94-01, Revision 2, and EPRI TR-1009325, Revision 2, acceptable for referencing by licensees proposing to amend their TSs to permanently extend the ILRT interval to 15 years, provided certain conditions are satisfied. These conditions, set forth in Section 4.2 of the SE for EPRI TR-1009325, Revision 2, stipulate that:

1. The licensee submit documentation indicating that the technical adequacy of their Probabilistic Risk Assessment (PRA) is consistent with the requirements of RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," relevant to the ILRT extension application. Additional application specific guidance on the technical adequacy of a PRA used to extend ILRT intervals is provided in the SE for EPRI TR-1009325, Revision 2.

2. The licensee submits documentation indicating that the estimated risk increase associated with permanently extending the ILRT surveillance interval to 15 years is small and consistent with the clarification provided in Section 3.2.4.6[2] of the SE for EPRI TR-1009325, Revision 2.

3. The methodology in EPRI TR-1009325, Revision 2, is acceptable provided the average leak rate for the pre-existing containment large leak accident case (i.e., accident

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1 EPRI TR-1009325, Revision 2-A, is also identified as EPRI TR-1018243.

2 Section 4.2 of the SER for EPRI TR-1009325, Revision 2, indicates that the clarification regarding small increases in risk is provided in Section 3.2.4.5; however, the clarification is actually provided in Section 3.2.4.6.

case 3b) used by licensees is assigned a value of 100 times the maximum allowable leakage rate (La) instead of 35 La.

4. A LAR is required in instances where containment over-pressure is relied upon for emergency core cooling system (ECCS) performance. In addition, per Section 3.2.4.6 of the SE for EPRI TR-1009325, Revision 2, the change in core damage frequency (CDF) should be calculated and reported.

Condition 1 - Plant-Specific Risk Evaluation

The licensee performed a risk impact assessment for extending the Type A containment ILRT interval to 15 years. The risk assessment was provided in Attachment 3 of the application dated December 9, 2014. Additional information was provided by the licensee in response to an NRC RAI by letter dated May 20, 2015 (ADAMS Accession Nos. ML15149A137).

In Section 4.5.1 of Attachment 1 to the LAR, the licensee stated that the plant-specific risk assessment follows the guidance in NEI 94-01, Revision 2-A; the methodology described in EPRI TR-1009325, Revision 2-A; and the guidance in RG 1.174, Revision 2, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis." Additionally, the licensee used the methodology that was utilized by Calvert Cliffs Nuclear Power Plant, with the NRC staff's approval, to assess the risk from undetected containment leaks due to steel liner corrosion for IP2.

The licensee addressed each of the four conditions for the use of EPRI TR-1009325, Revision 2, which are listed in Section 4.2 of the NRC SE. A summary of how each condition has been met is provided in the sections below.

Technical Adequacy of the PRA

The first condition stipulates that the licensee submits documentation indicating that the technical adequacy of its PRA is consistent with the requirements of RG 1.200 relevant to the ILRT extension application.

Consistent with the information provided in RIS 2007-06, "Regulatory Guide 1.200 Implementation," (ADAMS Accession No. ML070650428) the NRC staff uses Revision 2 of RG 1.200 (ADAMS Accession No. ML090410014) to assess the technical adequacy of a PRA used to support risk-informed applications received after March 2010. In Section 3.2.4.1 of the SE for NEI 94-01, Revision 2 and EPRI TR-1009325, Revision 2, the staff stated that Capability Category I of the American Society of Mechanical Engineers (ASME) PRA standard shall be applied as the standard for assessing PRA quality for ILRT extension applications, since approximate values of CDF and large early release frequency (LERF) and their distribution among release categories are sufficient to support the evaluation of changes to ILRT frequencies.

Section 4.5.2 of Attachment 1 to the LAR states that the risk assessment to support the extension of the ILRT frequency for IP2 "is based on the current Level 1 and Level 2 PRA model of record, which was released in November 2011." Appendix A to Attachment 3 of the LAR summarizes how the licensee maintains and updates the PRA model in accordance with Entergy procedures. The licensee's RAI response, in its letter dated May 20, 2015, clarified that

the IP2 internal events PRA peer review was performed against the ASME /American Nuclear Society (ANS) PRA Standard, ASME/ANS RA-Sa-2009, and that no gaps have been identified per the RG 1.200, Revision 2, requirements relevant to this application.

Per Appendix A to Attachment 3 of the LAR, the December 2009 full-scope peer review indicated that 95 percent of the applicable Supporting Requirements (SRs) "were satisfied at Capability Category II criteria or greater" for the IP2 internal events PRA model. Table A.2-1 provides a summary of the 21 peer review facts and observations (F&Os) which were classified as findings. Many of the findings identified are considered by the licensee to pertain to documentation issues or enhancements to the PRA model that do not significantly affect CDF or LERF. In all instances, the licensee determined that there would be no impact or minimal impact on CDF and LERF and that the finding would not impact the acceptability of the ILRT interval extension risk results.

The NRC staff reviewed the 21 peer review F&Os to determine their impact on this application and made the following determinations:

Finding 1-7 states that SR IE-C5 is not met because the initiating event frequencies were not weighted by the fraction of time the plant is at power. The licensee's disposition states that this finding remains open. In the licensee's assessment of the impact of the F&O on the ILRT extension application, the licensee notes that the approach will provide slightly conservative results. The NRC finds the licensee's disposition to be acceptable for this application because the licensee's method provides more conservative risk results by not applying a weighting factor based on plant availability.

Finding 4-2 for SRs DA-D1 and DA-D4 indicates that the SR is not met because the database used to estimate component failure rates is limited in scope. The licensee's disposition of the F&O explains that plant specific records were also used in the update of the failure rates and that no changes to data analysis were required as a result of this F&O. The licensee's PRA documentation was enhanced to resolve this concern in the future. The NRC staff finds the licensee's disposition to be acceptable for this application and agrees that this finding does not impact this application.

Finding 4-4 for SR QU-B10 explains that using a single value to represent the reliability of the Reactor Protection System (RPS) for certain initiating events is a simplification which reduces the ability to estimate the risk significance of support systems and components within the RPS. The licensee's disposition states that the RPS is a highly reliable system that is conservatively modeled consistent with NUREG/CR-5500, Volume 2, and that tests and maintenance are accounted for by adjusting the model, as necessary. The F&O does not appear to be met or only partially met based on the licensee's disposition. The NRC staff agrees, however, with the licensee's assessment that this will not have an adverse impact on this application because it would not affect the overall risk results.

The NRC staff reviewed the remaining 18 F&Os and the licensee's disposition and description of the impact and concluded that, for the level of quality needed for this application, the F&Os either have been adequately addressed, do not have a significant impact on risk evaluations for this application, or are only documentation issues. Based on the licensee's assessments using the currently applicable PRA standard and revision of RG 1.200, the staff concludes that the

level of internal events PRA quality, combined with the proposed evaluation and disposition of gaps, is sufficient to support the ILRT extension application.

In Section 3.2.4.2 of the SER for NEI 94-01, Revision 2 and EPRI TR-1009325, Revision 2, the NRC staff stated that:

> Although the emphasis of the quantitative evaluation is on the risk impact from internal events, the guidance in EPRI Report No. 1009325, Revision 2, Section 4.2.7, 'External Events,' states that: 'Where possible, the analysis should include a quantitative assessment of the contribution of external events (e.g., fire and seismic) in the risk impact assessment for extended ILRT intervals.' This section also states that: 'If the external event analysis is not of sufficient quality or detail to directly apply the methodology provided in this document [(i.e., EPRI Report No. 1009325, Revision 2)], the quality or detail will be increased or a suitable estimate of the risk impact from the external events should be performed. This assessment can be taken from existing, previously submitted and approved analyses or other alternate method of assessing an order of magnitude estimate for contribution of the external event to the impact of the changed interval.

In Section 5.7 of Attachment 3 to the LAR, the licensee performed an analysis of the external events contribution to risk and assessed the impact on the ILRT extension application. The licensee stated that the IP2 Individual Plant Examination of External Events (IPEEE) included high winds, internal fires, and seismic events as significant risk contributors and screened other external hazards. The seismic CDF used in the IP2 ILRT extension risk impact assessment is reduced as compared to the IPEEE due to plant modifications. A reduction factor has also been applied to the IPEEE fire CDF to account for plant changes and conservative assumptions in the IPEEE. A reduction factor was not applied to the high winds CDF, as such it is considered to be the most significant risk contributor. Section 5.7 of Attachment 3 also states that "the method chosen to account for external events contributions is similar to that used in the [Severe Accident Mitigation Alternatives (SAMA)] analysis in which a multiplier was applied to the internal events results based on information from the IPEEE."

The NRC staff also considered results of the NRC study published in "Results of Safety/Risk Assessment of Generic Issue 199, 'Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants" (ADAMS Accession No. ML100270582) which results in a higher seismic CDF. However, because of sufficient margin between the risk acceptance criteria and the risk associated with ILRT extension at IP2, as discussed in the evaluation of Condition 2 below in this SE, the risk of ILRT extension using the higher seismic CDF values from the NRC study still meets the acceptance criteria for this application. The licensee also noted in Section 5.7.3 of Attachment 3 to the LAR, that more recent information was submitted in its letter dated June 26, 2013 (ADAMS Accession No. ML13183A279) which indicated that the seismic CDF for IP2 is less than 1.0E-05/year, although this information was not used in the ILRT risk impact assessment in order to be consistent with the SAMA approach.

The NRC staff generally finds the use of the IPEEE studies in assessing the external events impact on the ILRT extension applications to be acceptable once those studies are evaluated to

consider new information. The IPEEE studies, as modified, provide an order of magnitude estimate for contribution of the external events, as required for the application. The staff notes that the licensee has re-evaluated aspects of its seismic and fire IPEEE analyses accounting for plant changes. Furthermore, using some potentially outdated external hazards analyses (i.e., high winds analysis) or not considering the impact of some external hazards that were screened by the IPEEE (e.g., external flooding) has no impact on the conclusions of this SE because sufficient margin exists between the risk acceptance criteria and the risk associated with the ILRT extension, as discussed in the evaluation of Condition 2 below in this SE. Therefore, the information used to estimate the effect on total LERF due to external events is considered acceptable. The risk impact of external events is appropriately included in the LAR and the increase in LERF was determined to meet the guidelines in RG 1.174 as discussed in the evaluation of Condition 2 below in this SE.

The licensee evaluated its internal events PRA against the currently endorsed ASME PRA standard (i.e., ASME/ANS RA-Sa-2009) and the currently implemented version of RG 1.200 (i.e., Revision 2), evaluated the findings developed during the peer review of its internal events PRA for applicability to the ILRT interval extension, addressed the findings or explained their impact, and included a quantitative assessment of the contribution of external events. The NRC staff reviewed the internal events PRA peer review findings and agrees that the dispositioned findings have been adequately addressed for this application and the cumulative impact of all open findings from the peer reviews is not significant for the ILRT interval extension application. Furthermore, the staff concludes that the impact from external events is appropriately considered by an order of magnitude estimate. Based on the above, the staff concludes that the PRA used by the licensee is of sufficient technical adequacy to support the evaluation of changes to ILRT frequency. Accordingly, the staff concludes that the first condition is met.

Condition 2 - Estimated Risk Increase

The second condition stipulates that the licensee submit documentation indicating that the estimated risk increase associated with permanently extending the ILRT interval to 15 years is small, consistent with the guidance in RG 1.174 and the clarification provided in Section 3.2.4.6 of the NRC SE for NEI 94-01, Revision 2, and EPRI TR-1009325, Revision 2. Specifically, a small increase in population dose should be defined as an increase in population dose of less than or equal to either 1.0 person-rem per year or 1 percent of the total population dose, whichever is less restrictive. In addition, the guidance indicates that a small increase in conditional containment failure probability (CCFP) should be defined as a value marginally greater than that accepted in previous one-time 15-year ILRT extension requests. This would require that the increase in CCFP be less than or equal to 1.5 percentage points. Additionally, for plants that rely on containment over-pressure for net positive suction head for ECCS injection, both CDF and LERF will be considered in the ILRT evaluation and compared with the risk acceptance guidelines in RG 1.174. As discussed further in the evaluation of Condition 4 below in this SE, IP2 does not credit containment over-pressure; therefore, CDF is not a relevant risk metric for this application. Thus, the associated risk metrics include LERF, population dose, and CCFP.

The licensee reported the results of the plant-specific risk assessment in Section 4.5.3 of Attachment 1 to the application dated December 9, 2014. Details of the risk assessment are provided in Attachment 3. The reported risk impacts are based on a change in test frequency

from three tests in 10 years (the test frequency under 10 CFR Part 50 Appendix J, Option A) to one test in 15 years. The following conclusions can be drawn from the licensee's analysis associated with extending the Type A ILRT frequency:

1. The reported increase in LERF is 9.84E-08/year for internal events only. The reported increase in LERF is 5.20E-07/year for internal and external events combined. The risk contribution from external events includes the effects of internal fires, high winds and seismic events, as discussed in the evaluation of Condition 1 of this SE. This change in internal and external events risk is considered to be "small" per the acceptance guidelines in RG 1.174 (i.e., change in LERF between 1E-06/year and 1E-07/year). Per RG 1.174, an assessment of baseline LERF is required to show that the total LERF is less than 1E-05 per reactor year. The total base LERF, including the increase in LERF associated with the change in ILRT frequency, is estimated to be 6.78E-06/year which is below the total LERF value of 1E-05 per reactor year in RG 1.174.

2. Per Table 5.7-3 in Attachment 3 to the LAR, given a change in Type A ILRT frequency from three tests in 10 years to one test in 15 years, the reported increase in the total population dose is 3.09 person-rem per year for internal events and external events combined, or 0.62 percent of the total population dose. The percent increase of total population dose is below the values associated with a small increase in population dose, as provided in EPRI TR-1009325, Revision 2-A, and defined in Section 3.2.4.6 of the NRC SE for NEI 94-01, Revision 2. Thus, this increase in the total integrated plant risk for the proposed change is considered small and supportive of the proposed change.

3. The licensee reports the increase in CCFP for going from a test frequency of three tests in 10 years to one test in 15 years to be 0.84 percent. This is below the guideline value of 1.5 percentage points for a small increase in CCFP, as provided in EPRI TR-1009325, Revision 2-A, and defined in Section 3.2.4.6 of the NRC SE for NEI 94-01, Revision 2.

Based on the above, the NRC staff concludes that the increase in LERF is small and consistent with the acceptance guidelines of RG 1.174, and the increase in the total population dose and the magnitude of the change in the CCFP for the proposed change are small and supportive of the proposed change. The defense-in-depth philosophy is maintained as the independence of barriers will not be degraded as a result of the requested change, and the use of the three quantitative risk metrics collectively ensures that the balance between prevention of core damage, prevention of containment failure, and consequence mitigation is preserved. Accordingly, the staff concludes that the second condition is met.

Condition 3 - Leak Rate for the Large Pre-Existing Containment Leak Rate Case

The third condition stipulates that in order to make the methodology in EPRI TR-1009325, Revision 2, acceptable, the average leak rate for the pre-existing containment large leak rate accident case (i.e., accident case 3b) used by the licensees shall be 100 L_a instead of 35 L_a. As noted by the licensee in Table 4.5-1 in Attachment 1 to the application dated December 9, 2014, and in the footnote for Section 1.3 in Attachment 3 to the application, the 100 L_a value has been used in the IP2 analysis. Accordingly, the NRC staff concludes that the third condition is met.

Condition 4 - Applicability if Containment Over-Pressure is Credited for ECCS Performance

The fourth condition stipulates that in instances where containment over-pressure is relied upon for ECCS performance, a LAR is required to be submitted. As noted in Table 4.5-1 in Attachment 1 to the application dated December 9, 2014, IP2 does not rely on containment over-pressure (i.e., containment accident pressure in excess of vapor pressure) for ECCS performance. Accordingly, the NRC staff concludes that the fourth condition does not apply.

3.3.1 Conclusions Regarding Additional Probabilistic Risk Considerations

The licensee performed a plant-specific risk impact assessment for extending the Type A containment ILRT interval to 15 years in accordance with EPRI TR-1009325, Revision 2-A. As part of this assessment, the licensee addressed each of the four conditions for the use of EPRI TR-1009325, Revision 2, which are listed in Section 4.2 of the NRC SE for NEI 94-01, Revision 2, and EPRI TR-1009325, Revision 2. The NRC staff concludes that the PRA technical adequacy and estimated risk increases are acceptable for this application, given that the licensee assumed the appropriate leak rate for accident case 3b and IP2 does not rely on containment over-pressure. Based on the above, the staff concludes that the proposed permanent extension of the Type A containment ILRT frequency to once in 15 years for IP2 is acceptable.

3.4 Additional In-service Inspection Considerations

The licensee proposed to extend the current performance-based Type A test interval to 15 years by adopting NEI-01, Revision 2-A as the implementation document in TS 5.5.14. The licensee justified the proposed change by demonstrating adequate performance of the IP2 containment based on plant-specific containment leakage testing program results and containment in-service inspection (IWE/IWL) results and supported by a plant-specific risk assessment, consistent with the guidance in the NEI document. The following discussion addresses the adequacy of the licensee's containment in-service inspection program.

Containment In-Service Inspection Program (ASME Section XI, Subsections IWE and IWL)

In Section 4.4.1 of the application, the licensee described its ASME Code Section XI, Subsection IWE ISI Program and provided a summary of the inspections conducted in 2008, 2012, and 2014. Past inspections of the liner have noted minor issues such as general surface corrosion and flaking and peeling of coatings. The licensee noted that these items have shown no significant changes over time and do not indicate any structural degradation that would adversely impact the ability of the containment to perform its design function. During the 2012 inspection it was noted that water seepage was observed adjacent to electrical penetration #69. To address this plant specific issue, as well as industry-wide operating experience related to leak-chase channels which was discussed in Information Notice (IN) 2014-07, the NRC issued several RAIs. In its response dated May 20, 2015, the licensee stated that the liner was not impacted by the water seepage and that a subsequent inspection in 2014 confirmed that the liner was in acceptable condition. The licensee also noted that the accessible portions of the leak-chase channel system have not been inspected as part of the IWE program. As a result of IN 2014-07, these areas were added to the scope of the IWE program and will be inspected

during the upcoming 2016 inspections. Any unacceptable degradation will be documented and addressed under the licensee's corrective action program.

The NRC staff noted that no indications of significant degradation were identified in past ASME Section XI, Subsection IWE inspections. The staff is also aware of past plant-specific operating experience related to the containment liner, including a feedwater line failure in 1973 and a containment flooding incident in 1980. The feedwater line failure in 1973 led to a deformation of the containment liner which was analyzed and found acceptable after the event. This area was inspected on March 22, 2014 to verify that no degradation was occurring and the results were documented in Inspection Report (IR) 05000247-13-009 (ADAMS Accession No. ML13186A179). In 1980, service water leaks inside containment led to flooding of the lower portions of containment. While appropriate corrective actions were taken after the event, water accumulation in the lower portions of containment raised the possibility of ongoing corrosion. Due to containment layout and geometry, the area most susceptible to corrosion would be the containment liner-concrete floor interface. As discussed in the evaluation of Condition 3 in Section 3.1 of this SE, corrosion was identified in this location in 2000. Thickness measurements were taken of the liner at this location and the minimum thickness was determined to be 0.355 in. The general minimum required liner thickness was determined to be 0.34 in.; however, this thickness assumes thermally induced stresses. This location is protected from significant thermal stresses by insulation. In the areas protected by insulation, the licensee's letter dated March 13, 2002 (ADAMS Accession No. ML020740233), concluded that the minimum required thickness is calculated to be approximately 0.18 in., which results in adequate margin to the measured thickness. Detailed inspections were completed of this area during three subsequent inspection periods and no changes were identified. The existing margin, along with the inspection results, provide reasonable assurance that the degradation identified in 2000 and the flooding incident in 1980 have not had a significant impact on the containment structure. Plant-specific operating experience demonstrates that indications of degradation in inaccessible areas have been identified and properly addressed. In addition, the licensee has addressed industry wide operating experience discussed in IN 2014-07 by adding the leak-chase channel system to the IWE scope. The staff finds the licensee is properly implementing the ASME Section XI, Subsection IWE Program, which provides reasonable assurance that the structural integrity of the liner will be maintained if the ILRT frequency is extended to 15 years.

In Section 4.4.2 of the application, the licensee described the IWL Inservice Inspection Program and provided a summary of the inspections conducted in 2005 and 2010. The licensee noted that the examinations identified 91 and 125 indications, respectively. The indications included minor cracking, spalling, exposed rebar, and efflorescence or rust bleeding. The licensee noted that none of the indications represented structural concerns and none impacted the ability of the containment to perform its safety function. In the licensee's letter of May 20, 2015, the licensee stated that of the 125 indications found in 2010, 70 were exposed cad welds ranging from four to ten inches, two were exposed rebar, and 33 were miscellaneous pieces of steel. These 105 locations were photographed with a ruler for scale and the steel surface was coated to prevent future corrosion. An additional 20 indications were identified in inaccessible locations due to their proximity to the main steam safety valves. The licensee further noted that these areas were found to be acceptable based on the IWL-3000 acceptance criteria and due to the lack of measurable loss of material of the steel or significant spalling of concrete.

The NRC staff noted that the indications found in past inspections were acceptable per the IWL acceptance criteria and the indications identified no significant concrete spalling or loss of material in the associated reinforcing steel. The staff finds the licensee is properly implementing the ASME Section XI, Subsection IWL Program, which provides reasonable assurance that the structural integrity of the concrete containment will be maintained if the ILRT frequency is extended to 15 years.

NRC Staff's Overall Evaluation of the Proposed Extension of Type A Test Interval up to 15 Years

Based on the evaluation presented above, the NRC staff finds that the licensee has adequately implemented its Containment Inservice Inspection Program to periodically examine, monitor, and manage the condition of its containment structure. The results of past containment concrete and liner visual inspections demonstrate acceptable performance of the containment and demonstrate that the structural integrity of the containment structure is adequate. Thus, the staff finds that there is reasonable assurance that the containment structural integrity will continue to be maintained, without undue risk to public health and safety, if the current Type A interval is extended to 15 years. Therefore, the staff finds it acceptable to extend the interval, as proposed by the licensee, in accordance with NEI 94-01, Revision 2-A.

3.4.1 Conclusions Regarding Additional Structural Integrity Considerations

Based on the NRC staff's review of the licensee's submittal of December 9, 2014, supplemental information provided in response to staff RAIs, and the regulatory and technical evaluations above, the staff finds that there is reasonable assurance that the licensee has addressed applicable NRC conditions to demonstrate the acceptability of adopting topical report NEI 94-01, Revision 2-A. The staff also finds that the structural integrity of the IP2 containment will continue to be adequately monitored and maintained if the performance-based Type A test interval is extended to up to 15 years. Therefore, the staff concludes that it is acceptable to approve the proposed license amendment for IP2 to: (i) revise TS 5.5.14, "Containment Leakage Rate Testing Program," to adopt NEI 94-01, Revision 2-A, as the implementation document, and (ii) extend the current Type A test interval up to 15 years.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment. By letter dated November 20, 2015 (ADAMS Accession No. ML15328A454), the State Liaison Officer for New York State submitted comments recommending that the NRC staff deny the proposed license amendment.

The letter from the State of New York described the importance of the ILRT and noted that if the proposed amendment is approved, there would only be a single ILRT conducted during the remaining period of extended operation through 2033. Furthermore, the State of New York stated that "Type A testing can determine whether unknown or previously unidentified sources of leakage exist and is the only test of the containment liner's overall integrity."

The issues identified by the State of New York to support its argument to deny the proposed amendment, were also included in the May 18, 2015, "State of New York Petition to Intervene

and Request for Hearing," submitted by the Office of the Attorney General of the State of New York (ADAMS Accession No. ML15138A415). These issues were previously reviewed by the staff in its answer to the Petition and were considered and rejected in the Atomic Safety and Licensing Board's (ASLB's) Memorandum and Order (Denying New York's Petition to Intervene) dated September 25, 2015 (ADAMS Accession No. ML15268A386).

In brief, the principal issues provided in support of the State of New York's argument to deny the proposed amendment and the ASLB's findings with regards to those issues were as follows:

- The State pointed to: (1) a 1968 plant construction event involving containment liner plate buckling; (2) a 1973 event involving a breach of steam generator feedwater piping that resulted in containment liner plate damage; (3) a 1980 event involving containment flooding from the Hudson River resulting in containment liner plate corrosion; and (4) various plant inspections that revealed evidence of minor corrosion of the liner plate. However, the documentation reveals that: (1) the containment liner plate damage at IP2 has been remediated; (2) subsequent ILRTs and inspections have been acceptable; (3) no significant corrosion has occurred, and any damage has been corrected as necessary, and (4) visual inspections performed in accordance with the ASME Code confirm no worsening of the conditions. Furthermore, while the State of New York argued that Entergy failed to consider the plant-specific history of the IP2 containment liner plate under the performance-based requirements of Appendix J, Option B, the Commission was aware of containment degradation issues when if promulgated performance-based testing and subsequent regulations on visual inspections, and despite such awareness, it placed no "historical event" restriction on reactors electing to comply with Appendix J through performance-based testing.

- The State pointed to an internal AEC memorandum dated April 15, 1974 (ADAMS Accession No. ML093630690) where the NRC technical staff recommended that "increased attention should be given to the surveillance of the liner during the life of the plant and that the frequency of the leakage tests required by the technical specifications should be increased." The ASLB decision noted that the 1974 recommendation was never adopted by the AEC and was superseded by subsequent Commission assessments in 1997 and 2002 that authorized reducing the frequency of the ILRT at IP2. Furthermore, in the 1974 internal AEC memorandum, the technical staff concluded that deformations of the liner plate due to the pipe break did not damage the liner and that the liner capacity to fulfill its safety function was not impaired.

- The State pointed to recent studies performed in response to the Fukushima earthquake and tsunami of March 11, 2011, asserting that seismic risks at IP2 may be greater than anticipated during original plant construction. The ASLB decision stated that "simply referencing this study without explaining the information's significance relative to the potential containment leakage monitored by the testing at issue does not establish its materiality."

- Finally, the State pointed to historical results showing that the ILRT leakage values have been increasing over time and are on a trend to exceed acceptance criteria. As discussed in Section 3.2 of this SE, the NRC staff questioned the licensee regarding the significance of

an apparent upward trend of the ILRT test results and concluded that it does not indicate a definitive trend towards exceeding the ILRT performance criteria of 0.75 L_a. Furthermore, as stated in the ASLB decision, "even if the apparent trend in Type A tests were extrapolated, it is undisputed that the leakage would not exceed the regulatory limit of 1.0 L_a during the fifteen-year period between consecutive Type A tests."

In summary, the NRC staff considered the State's comments and the relationship between the comments and Entergy's request to change the ILRT testing frequency under its performance-based program. After careful consideration, the staff did not identify any deficiency in Entergy's application based on the concerns and information provided by the State.

5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION (NSHCD)

The NRC staff published a proposed No Significant Hazards Consideration (NSHC) determination in the *Federal Register* on March 17, 2015 (80 FR 13905). As stated in Section 4.0, STATE CONSULTATION, of this SE, on May 18, 2015, the Office of the Attorney General of the State of New York submitted a petition to intervene and request for hearing. The ASLB rejected the petition in its decision dated September 25, 2015. On October 20, 2015 (ADAMS Accession No. ML15293A585), the State of New York appealed this decision. The State's appeal is currently pending before the Commission.

Under its regulations, the Commission may issue and make an amendment immediately effective, notwithstanding the pendency before it or a request for a hearing from any person, in advance of the holding and completion of any required hearing, where it has made a final determination that no significant hazards consideration is involved.

The NRC's regulations in 10 CFR 50.92(c) state that the NRC may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility, in accordance with the proposed amendment, would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

As required by 10 CFR 50.91(a), the licensee provided its analysis of the issue of no significant hazards consideration which is presented below.

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed amendment involves changes to the IP2 containment leakage rate testing program. The proposed amendment does not involve a physical change to the plant or a change in the manner in which the plant is operated or controlled. The primary containment function is to provide an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment for postulated accidents. As such, the containment itself and the testing requirements to periodically demonstrate the integrity of the

containment exist to ensure the plant's ability to mitigate the consequences of an accident do not involve any accident precursors or initiators. Therefore, the probability of occurrence of an accident previously evaluated is not significantly increased by the proposed amendment.

The proposed amendment adopts the NRC accepted guidelines of NEI 94-01, Revision 2A, for development of the IP2 performance-based testing program for the Type A testing. Implementation of these guidelines continues to provide adequate assurance that during design basis accidents, the primary containment and its components would limit leakage rates to less than the values assumed in the plant safety analyses. The potential consequences of extending the ILRT interval to 15 years have been evaluated by analyzing the resulting changes in risk. The increase in risk in terms of person-rem per year within 50 miles resulting from design basis accidents was estimated to be acceptably small and determined to be within the guidelines published in RG 1.174. Additionally, the proposed change maintains defense-in-depth by preserving a reasonable balance among prevention of core damage, prevention of containment failure, and consequence mitigation. Entergy has determined that the increase in conditional containment failure probability due to the proposed change would be very small. Therefore, it is concluded that the proposed amendment does not significantly increase the consequences of an accident previously evaluated.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   The proposed amendment adopts the NRC-accepted guidelines of NEI 94-01, Revision 2A, for the development of the IP2 performance-based leakage testing program, and establishes a 15-year interval for the performance of the containment ILRT. The containment and the testing requirements to periodically demonstrate the integrity of the containment exist to ensure the plant's ability to mitigate the consequences of an accident do not involve any accident precursors or initiators. The proposed change does not involve a physical change to the plant (i.e., no new or different type of equipment will be installed) or a change to the manner in which the plant is operated or controlled.

   Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

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

   Response: No.

   The proposed amendment adopts the NRC-accepted guidelines of NEI 94-01, Revision 2A, for the development of the IP2 performance-based leakage testing program, and establishes a 15-year interval for the performance of the containment ILRT. This amendment does not alter the manner in which safety limits, limiting safety system setpoints, or limiting conditions for operation are determined. The specific requirements and conditions of the containment leakage rate testing program, as defined in the TS [technical specifications], ensure that the degree of primary containment structural integrity and leak-tightness that is considered in the plant's safety analysis is maintained. The overall containment leakage rate limit specified by the TS is maintained, and the Type A containment leakage tests would be performed at the frequencies established in accordance with the NRC-accepted guidelines of NEI 94-01, Revision 2A with no change to the 60 month frequencies of Type B, and Type C tests.

   Containment inspections performed in accordance with other plant programs serve to provide a high degree of assurance that the containment would not degrade in a manner that is not detectable by an ILRT. A risk assessment using the current IP2 PSA [probabilistic safety assessment] model concluded that extending the ILRT test interval from ten years to 15 years results in a very small change to the risk profile.

   Therefore, the proposed change does not involve a significant reduction in a margin of safety.

The NRC staff reviewed the licensee's NSHC determination. Based on this review and on the staff's evaluation of the underlying license amendment request as discussed above, the staff concludes that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the staff has made a final determination that no significant hazards consideration is involved for the proposed amendment and that the amendment should be issued as provided in 10 CFR 50.91.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (80 FR 13905). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations; and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: David A. Nold, David Gennardo, Bryce Lehman

Date: February 23, 2016

February 23, 2016

Vice President, Operations
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
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P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NO. 2 - ISSUANCE OF AMENDMENT RE: EXTENSION OF THE CONTAINMENT INTEGRATED LEAK RATE TEST TO 15 YEARS (CAC NO. MF5382)

Dear Sir or Madam:

The Commission has issued the enclosed Amendment No. 283 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2. The amendment consists of changes to the technical specifications (TSs) in response to your application dated December 9, 2014, as supplemented by two letters dated May 20, 2015, and letters dated June 8 and June 29, 2015.

The amendment revises TS 5.5.14, "Containment Leakage Rate Testing Program," to extend the frequency of the containment integrated leak rate test from once every 10 years to once every 15 years on a permanent basis.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,
/RA/
Douglas V. Pickett, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-247

Enclosures:

1. Amendment No. 283 to DPR-26

2. Safety Evaluation

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