

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**BEFORE THE ATOMIC SAFETY AND LICENSING BOARD**

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In the Matter of:	)	Docket No. 50-247-LA
	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	ASLBP No. 15-942-06-LA-BD01
	)	
(Indian Point Nuclear Generating Station, Unit 2)	)	June 12, 2015

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**ENTERGY'S ANSWER OPPOSING STATE OF NEW YORK'S  
PETITION TO INTERVENE AND REQUEST FOR HEARING**

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## TABLE OF CONTENTS

	Page
I. INTRODUCTION .....	1
II. PROCEDURAL HISTORY .....	4
III. REGULATORY BACKGROUND .....	6
A. Safety Function of the IP2 Containment Structure .....	6
B. Applicable NRC Requirements, Including Required Leakage Tests.....	7
C. Appendix J Test Program Option B and Related NRC-Approved Guidance .....	8
D. Leakage Rate Test Acceptance Criteria .....	10
E. The IP2 Containment Leakage Rate Testing Program .....	11
F. Required Code Inspections of the Reactor Containment .....	11
IV. NEW YORK’S PROPOSED CONTENTIONS ARE INADMISSIBLE.....	13
A. Governing Legal Standards for Contention Admissibility .....	13
B. Proposed Contention NYS-1 Is Inadmissible Because It Fails to the Meet the Requirements of 10 C.F.R. § 2.309(f)(1)(iii)-(vi).....	14
1. Basis 1: Alleged “Unique Degradation” History of the IP2 Containment Liner .....	15
2. Basis 2: Alleged Insights from Previous Tests and Inspections .....	24
3. Basis 3: Alleged Effect of the “Elevated” Seismic Hazard .....	29
4. Basis 4: Alleged Existence of Significant Hazards Consideration .....	31
5. Basis 5: Alleged Reliance on Erroneous Information from the IP2 License Renewal SAMA Analysis.....	33
6. Basis 6: Entergy’s Alleged Desire to Reduce Costs and Maximize Revenues to the Detriment of Plant Safety .....	35
C. Proposed Contention NYS-2 Is Inadmissible Because It Fails to the Meet the Requirements of 10 C.F.R. § 2.309(f)(1)(iii)-(vi).....	37
V. CONCLUSION.....	38

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**I. INTRODUCTION**

Pursuant to 10 C.F.R. § 2.309(i)(1), Entergy Nuclear Operations, Inc. (“Entergy”) submits this answer opposing the petition to intervene and request for hearing filed on May 18, 2015, by the State of New York (“New York” or “Petitioner”).<sup>1</sup> New York seeks to intervene in the proceeding associated with Entergy’s December 9, 2014, license amendment request (“LAR”), which seeks to revise Indian Point Unit 2 (“Unit 2” or “IP2”) Technical Specification 5.5.14, “Containment Leakage Rate Testing Program,” to extend the frequency of the Containment Integrated Leak Rate Test (“ILRT”) or Type A Test for Unit 2 from once every 10 years to once every 15 years on a permanent basis.<sup>2</sup> New York proffers two proposed contentions—a safety contention (NYS-1) and an environmental contention (NYS-2).<sup>3</sup>

For the reasons set forth below, the Atomic Safety and Licensing Board (“Board”) should deny the Petition in its entirety. Although Entergy does not contest New York’s standing to

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<sup>1</sup> State of New York Petition to Intervene and Request for Hearing (May 18, 2015) (“Petition”) (ML15138A415).

<sup>2</sup> See Letter from Lawrence Coyle, Entergy, to NRC Document Control Desk, NL-14-128, Proposed License Amendment Regarding Extending the Containment Type A Leak Rate Testing Frequency to 15 years, Indian Point Unit Number 2, Docket No. 50-247, License No. DPR-26 (Dec. 9, 2014) (“LAR”) (ML14353A015).

<sup>3</sup> Petition at 5, 20.

intervene in this proceeding,<sup>4</sup> New York has failed to submit an admissible contention. The deficiencies in New York’s proposed contentions are many, but perhaps the most obvious defect is New York’s failure to provide any expert opinion or relevant technical information to support its overarching claim that issuance of the requested license amendment will imperil New York’s citizens and environment. As discussed herein, New York provides no valid factual or technical support for that claim—among many others—contrary to the requirements of 10 C.F.R.

§ 2.309(f)(1)(v).<sup>5</sup>

Contrary to the requirement of 10 C.F.R. § 2.309(f)(1)(vi), New York also fails to directly challenge the contents of Entergy’s license amendment application,<sup>6</sup> which contains a detailed technical evaluation of the proposed extension of the interval for the primary containment ILRT from 10 to 15 years.<sup>7</sup> That evaluation is supported by a detailed, plant-specific risk impact assessment that was prepared by a qualified probabilistic risk assessment (“PRA”) vendor, which concluded that increasing the ILRT interval on a permanent basis to a one-in-fifteen year frequency is not considered to be significant since it represents only a small change in the IP2 risk profiles.<sup>8</sup> New York ignores these technical evaluations, and instead relies principally on

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<sup>4</sup> See Petition at 2-4. New York includes a list of “historic, unique or otherwise significant sites within 50 miles of the IP2 site” as Attachment 1 to its Petition, and a map of reservoirs in the vicinity of the IP2 site as Attachment 2. Insofar as New York appears to have included those attachments to support its claim of standing, which Entergy does not dispute, Entergy does not further discuss the attachments, which have no apparent nexus to the ILRT-related subject matter of Entergy’s pending license amendment request.

<sup>5</sup> See *Pub. Serv. Co. of N.H.* (Seabrook Station, Units 1 & 2), ALAB-942, 32 NRC 395, 428 (1990) (stating that petitioner must provide a “sufficient foundation” to “warrant further exploration”) (citation omitted); *Yankee Atomic Elec. Co.* (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 262 (1996) (holding that a petitioner bears the burden to present the factual information or expert opinions necessary to support its contention adequately, and failure to do so requires the licensing board to reject the contention).

<sup>6</sup> See, e.g., Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process, 54 Fed. Reg. 33,168, 33,170 (Aug. 11, 1989) (stating that petitioner must “read the pertinent portions of the license application . . . state the applicant’s position and the petitioner’s opposing view,” and explain why it disagrees with the applicant).

<sup>7</sup> See generally LAR, attachment 1, “Analysis of Proposed Technical Specification Changes Regarding 15 Year Containment ILRT.”

<sup>8</sup> See LAR, attachment 3, “Risk Assessment for Indian Point Regarding the ILRT (Type A) Permanent Extension Request,” Rev. 0, Document No. 0247-13-0002-4722 (Oct. 11, 2013), at 7-2.

conclusory assertions by counsel and discussion of historical containment-related “incidents” that occurred—and were addressed—35 years or more ago.<sup>9</sup>

New York also overlooks the fact that the ILRT is only one of numerous tests and inspections that Entergy performs to ensure that the IP2 containment performs its intended safety function. As discussed in the LAR and Section III below, in addition to the Type A tests (ILRTs), Entergy performs: (1) Type B tests for the containment penetrations and airlocks, (2) Type C tests for the containment isolation valves, (3) “IWE” internal visual inspections of the containment liner every three and one-third years, (4) “IWL” external visual inspections of the containment concrete surfaces every five years, (5) general visual inspections of the outside surfaces of the containment (including the penetrations) every two years per plant procedure 2-PI-2Y001, and (6) general visual inspections of the internal and external containment surfaces prior to each ILRT and at a periodic interval between tests based on the performance of the containment system. As further discussed in Section III, IP2 has a weld channel pressurization system that allows for real-time monitoring of potential leakage through the portions of the containment boundary that it pressurizes. None of these other tests, inspections, or systems is affected by the requested change to the ILRT frequency.

Finally, New York’s proposed contentions raise issues that are neither within the scope of this LAR proceeding nor material to the Staff’s required findings, contrary to the requirements of 10 C.F.R. § 2.309(f)(1)(iii) and (iv). In particular, New York raises issues related to the Indian Point license renewal severe accident mitigation alternatives (“SAMA”) analysis and improperly

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<sup>9</sup> See, e.g., Petition at 1 (“Entergy’s LAR would increase the risk that the citizens and environment of the State will be exposed to the release of radioactive materials.”); *id.* at 12 (“The history of the IP2 containment liner makes it particularly ill-suited for the reduced safety-margins proposed by Entergy.”). These, like many statements in the Petition, are unaccompanied by citations. Moreover, as discussed herein, insofar as New York discusses specific “supporting” documents in its Petition, it repeatedly takes statements out of context and ignores other material information in those documents that contradicts its position.

challenges the Nuclear Regulatory Commission (“NRC” or “Commission”) Staff’s proposed “no significant hazards consideration” determination for the LAR.<sup>10</sup>

For all these reasons, the Petition should be denied in its entirety.

## **II. PROCEDURAL HISTORY**

On December 14, 2014, Entergy filed with the NRC an application to amend the IP2 operating license pursuant to 10 C.F.R. § 50.90. The proposed amendment would revise Technical Specification 5.5.14, “Containment Leakage Rate Testing Program,” to extend the frequency of the ILRT from once every 10 years to once every 15 years on a permanent basis.<sup>11</sup> As discussed in Section III.E of this brief, the NRC approved a license amendment that extended the Unit 2 ILRT interval on a one-time basis from ten years to 15 years in August 2002. In recent years, the NRC has approved numerous one-time and permanent extensions of the ILRT interval from 10 to 15 years for various plants based on the performance-based NRC regulations and NRC-approved industry guidelines (*i.e.*, topical reports) discussed below.<sup>12</sup>

Entergy’s application contains a detailed technical evaluation (Attachment 1) of the proposed Technical Specification changes, which are in accordance with 10 C.F.R. Part 50, Appendix J, and the NRC-approved guidance document NEI 94-01, Rev. 2-A, “Industry Guideline for Implementing Performance Based Option of 10 CFR Part 50, Appendix J” (Oct. 2008). Among other things, the LAR evaluation discusses the safety significance of the proposed Technical Specification change in accordance with the criteria of 10 C.F.R. § 50.92 (“Issuance of

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<sup>10</sup> See Petition at 8-9, 19-22.

<sup>11</sup> See LAR at 1.

<sup>12</sup> Examples of previous NRC-approved ILRT interval extensions include Nine Mile Point, Unit 2 (permanent extension of ILRT interval from 10 to 15 years in 2010 (ML100730032)); Arkansas Nuclear One, Unit 2 (permanent extension of ILRT interval from 10 to 15 years in 2011 (ML110800034)); Palisades (permanent extension of ILRT interval from 11.25 to 15 years in 2012 (ML120740081)); Indian Point, Unit 3 (permanent extension of ILRT interval from 10 to 15 years in 2015 (ML15028A308)); Braidwood, Units 1 and 2 (one-time extension of ILRT amendment from 10 to 15 years in 2008 (ML080640290)); Limerick, Units 1 and 2 (one-time extension of ILRT amendment from 10 to 15 years in 2008 (ML080310769)); and North Anna, Unit 2 (one-time extension of ILRT amendment from 10 to 15 years in 2008 (ML081510562)).

Amendment”).<sup>13</sup> Entergy determined that the proposed amendment does not involve a significant hazards consideration under 10 C.F.R. § 50.92(c).<sup>14</sup> In addition, the application includes a detailed confirmatory risk impact assessment (Attachment 3) that evaluates the risk associated with implementing a permanent extension of the ILRT interval from 10 years to 15 years.<sup>15</sup> The impact assessment demonstrates that increasing the ILRT interval is not risk significant because it represents only a small change in the IP2 plant-specific risk profile.<sup>16</sup>

The NRC accepted the LAR for docketing, and published a Hearing Notice on March 17, 2015.<sup>17</sup> The Hearing Notice included the NRC Staff’s proposed no significant hazards consideration determination and provided interested parties 60 days (*i.e.*, until May 18, 2015) to request a hearing related to the LAR.<sup>18</sup>

New York’s Petition was filed on May 18, 2015. As noted above, the Petition contains a proposed safety contention (NYS-1) and a proposed environmental contention (NYS-2). In brief, NYS-1 alleges that Entergy’s LAR fails to demonstrate that it complies with 10 C.F.R. §§ 50.40 and 50.92 or 10 C.F.R. Part 50, Appendix J, and therefore does not provide reasonable assurance of adequate protection for the public health and safety, as required by the Atomic Energy Act of

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<sup>13</sup> See LAR, attachment 1 at 17-18.

<sup>14</sup> *Id.* at 18.

<sup>15</sup> See *id.*, attachment 3. Entergy third-party vendor ERIN Engineering & Research, Inc. prepared the risk impact assessment in accordance with NRC-approved industry guidelines discussed in Section III below. See *id.* at 1-1.

<sup>16</sup> See *id.* at 7-2. This conclusion is consistent with the general findings of previous NRC and industry studies that the risk impact associated with extending the ILRT interval to one in 15 years is small. See LAR, attachment 1, at 15.

<sup>17</sup> Biweekly Notice; Applications and Amendments to Facility Operating Licenses and Combined Licenses Involving No Significant Hazards Considerations, 80 Fed. Reg. 13,902 (Mar. 17, 2015) (“Hearing Notice”).

<sup>18</sup> See *id.* at 13,903, 13,905-06. The NRC’s no significant hazards consideration determination is consistent with the NRC’s very recent approval of an amendment to the Indian Point Unit 3 (“IP3”) operating license allowing a permanent extension of the Type A primary containment ILRT frequency from once every 10 years to once every 15 years. See Letter from Douglass V. Pickett, NRC, to Vice President of Operations, Entergy, Indian Point Nuclear Generating Unit No. 3 – Issuance of Amendment Re: Extension of the Type A Containment Integrated Leak Rate Test Frequency from 10 to 15 Years (TAC No. MF3426) (Mar. 13, 2015) (ML15028A308).

1984, as amended (“AEA”).<sup>19</sup> NYS-2 asserts that proposed license amendment is not categorically exempt from environmental review under 10 C.F.R. § 51.22(c)(9), and that Entergy and the NRC Staff must perform an environmental review to meet the requirements of the National Environmental Policy Act (“NEPA”).<sup>20</sup>

Entergy timely files this answer opposing the Petition in accordance with 10 C.F.R. § 2.309(i)(1).

### **III. REGULATORY BACKGROUND**

#### **A. Safety Function of the IP2 Containment Structure**

The IP2 containment structure is a steel-lined reinforced concrete vertical cylinder with a flat base mat and hemispherical dome that completely encloses the reactor and reactor coolant system (“RCS”).<sup>21</sup> The containment liner, which covers the inner surface of the concrete containment structure, provides an essentially leak-tight barrier against leakage out of the containment during an accident.<sup>22</sup> The containment’s intended function is to ensure that any leakage of radioactive materials to the environment, even if a gross failure of the RCS were to occur, does not result in off-site doses greater than the limits of 10 C.F.R. Part 100.<sup>23</sup> The IP2 containment pressure boundary consists of the steel-lined containment structure, containment access penetrations, and other process piping and electrical penetrations.<sup>24</sup>

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<sup>19</sup> Petition at 5.

<sup>20</sup> *Id.* at 20.

<sup>21</sup> See Letter from Patrick D. Milano, NRC, to Michael, R. Kansler, Entergy, Indian Point Nuclear Generating Unit No. 2 – Amendment Re: One-Time Deferral of Containment Integrated Leak Rate Test (TAC No. MB2414), encl. 2, Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment No. 232 to Facility Operating License No. DPR-26, Entergy Nuclear Operations, Inc., Indian Point Nuclear Generating Unit No. 2, Docket No. 50-247 (Aug. 5, 2002) (“2002 IP2 Safety Evaluation”), at 4 (ML021860178).

<sup>22</sup> The containment liner is carbon steel. Therefore, the only credible degradation mechanism is general corrosion caused by continuous exposure of the steel to a corrosive environment.

<sup>23</sup> See 2002 IP2 Safety Evaluation at 4.

<sup>24</sup> See *id.*

IP2 is one of a very few U.S. plants to have a system that pressurizes the containment weld channels and certain containment penetrations during normal plant operation.<sup>25</sup> Specifically, the IP2 Containment Weld Channel and Penetration Pressurization System (“WC&PPS”) keeps the channels pressurized during normal plant operation and, by design, during accidents.<sup>26</sup> The pressure is maintained at or above calculated peak containment accident pressure. The WC&PPS provides for continuous on-line measuring of leakage through the portions of the containment boundary that it pressurizes, and thereby also allows plant operators to promptly detect increased leakage during normal operation (*e.g.*, in the unlikely event that a through-wall flaw develops or an isolation valve fails open).<sup>27</sup> The WC&PPS also prevents containment atmosphere from leaking out of the containment through the liner welds and penetrations, even with a failure, during a postulated accident.<sup>28</sup> In this regard, the WC&PPS is an engineered safety feature that would act to prevent containment leakage through potential flaws in the liner welds.<sup>29</sup>

**B. Applicable NRC Requirements, Including Required Leakage Tests**

To ensure that reactor containments are maintained properly and able to perform their design-basis functions, NRC regulations require that licensees conduct leakage rate testing and inspections of containments and associated pressure-retaining components at periodic intervals.<sup>30</sup> Under 10 C.F.R. § 50.54(o), primary reactor containments are subject to the leakage testing requirements contained in 10 C.F.R. Part 50, Appendix J, “Primary Reactor Containment Leakage

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<sup>25</sup> *See id.* at 5.

<sup>26</sup> *See id.*

<sup>27</sup> *See id.* IP2 Technical Specification 3.5.16 requires the system to be operable in modes above cold shutdown and places a limit on the total rate of leakage out of the WC&PPS during normal operation. *Id.* If the leakage rate exceeds the limit, then Entergy must reduce the leakage rate below the limit or shut down the plant. *Id.* Very limited portions of the WC&PPS system (approximately 4% of the total number of penetrations/weld channels supplied with Weld Channel air) have been retired in place.

<sup>28</sup> *See id.*

<sup>29</sup> *See id.*

<sup>30</sup> *See id.* at 2.

Testing for Water-Cooled Power Reactors.” Appendix J identifies three types of required tests:<sup>31</sup>

(1) Type A (ILRT) tests, which measure the containment overall integrated leakage rate;<sup>32</sup> (2)

Type B local leakage-rate tests (“LLRTs”), which detect local leaks and measure leakage across pressure-containing or leakage limiting boundaries (other than valves) for containment

penetrations; and (3) Type C LLRTs, which measure containment isolation valve leakage.<sup>33</sup> The

instant LAR, if approved, would modify only the Type A testing interval. The Type B and Type C testing intervals would not change. In addition, the frequencies of the general visual inspections discussed in Section III.F will not change.

### C. Appendix J Test Program Option B and Related NRC-Approved Guidance

In 1995, the NRC amended Appendix J to provide a performance-based Option B for the containment leakage testing requirements.<sup>34</sup> Option B allows for test intervals for Type A, Type B, and Type C testing to be determined by using a performance-based approach.<sup>35</sup> Performance-based test intervals are based on consideration of a component’s operating history failure risk.<sup>36</sup> If selected, Appendix J, Option B requires that a Type A test be conducted at a periodic interval based on historical performance of the overall containment system.<sup>37</sup>

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<sup>31</sup> See 10 C.F.R. pt. 50, app. J, Option B, secs. III.A. & III.B.

<sup>32</sup> See *id.* sec. III.A. The Type A test or ILRT measures integrated leakage rate from all potential leakage paths, including containment liner welds, valves, fittings, and components that penetrate containment. See 2002 IP2 Safety Evaluation at 2. These tests typically involve pressurizing the containment atmosphere to a specified test pressure for a duration that is sufficient to determine what the containment leakage would be under design-basis accident conditions. See *id.* The acceptance criteria for the Type A test and the Technical Specification leakage limits are conservatively established to ensure that, in the event of a design-basis accident, the dose received by a member of the general public will not exceed the limits specified in 10 C.F.R. Part 100. See *id.*

<sup>33</sup> 10 C.F.R. pt. 50, app. J, Option B, sec. III.B.

<sup>34</sup> Final Rule, Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors, 60 Fed. Reg. 49,495 (Sept. 26, 1995).

<sup>35</sup> See generally 10 C.F.R. pt. 50, app. J, Option B—Performance Based Requirements.

<sup>36</sup> See *id.* sec. III.A.

<sup>37</sup> See *id.*

Current IP2 Technical Specification 5.5.14 states that leakage rate testing shall be performed as required by Option B, as modified by approved exemptions, and in accordance with the guidelines contained in NRC Regulatory Guide 1.163.<sup>38</sup> Regulatory Guide 1.163 endorses Nuclear Energy Institute (“NEI”) Report 94-01, Revision 0,<sup>39</sup> which NEI has since revised several times in response to subsequent developments and NRC-industry interactions, including NRC Staff requests for additional information (“RAIs”).<sup>40</sup> Revision 2-A of NEI 94-01 added guidance for extending Type A ILRT surveillance intervals beyond ten years.

NEI 94-01, Revision 2-A, the revision referenced in the LAR, states that plant-specific “confirmatory analyses” are required when extending the Type A ILRT interval beyond ten years.<sup>41</sup> Section 9.2.3.4 of NEI 94-01 states that the assessment should be performed using the approach and methodology described in Electric Power Research Institute (“EPRI”) Technical Report (“TR”) 1009325, Revision 2-A, “Risk Impact Assessment of Extended Integrated Leak Rate Testing Intervals.”<sup>42</sup> 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 a safety evaluation issued on June 25, 2008, the NRC Staff found the methodology in NEI 94-01, Revision 2, and EPRI TR-1009325, Revision 2, to be acceptable for referencing by licensees proposing to

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<sup>38</sup> See LAR, attachment 2; NRC Regulatory Guide 1.163, “Performance-Based Containment Leak-Rate Testing Program” (Sept. 1995) (ML003740058).

<sup>39</sup> NEI 94-01, Rev. 0, “Industry Guideline for Implementing Performance Based Option of 10 CFR Part 50, Appendix J” (July 1995) (ML11327A025).

<sup>40</sup> NEI submitted NEI 94-01, Revision 1 to the NRC in December 2005, and Revision 2 in August 2007. The NRC Staff approved Revision 2 as a topical report in a safety evaluation issued on June 25, 2008. At the Staff’s request, NEI issued an NRC-approved version as NEI 94-01, Rev. 2-A in October 2008. (The industry typically resubmits a topical report with the suffix “-A” to denote that the document has been approved by the NRC.)

<sup>41</sup> NEI 94-01, Rev. 2-A, “Industry Guideline for Implementing Performance Based Option of 10 CFR Part 50, Appendix J,” at 12 (Oct. 2008) (ML100620847).

<sup>42</sup> *Id.* at 13.

amend their licenses to permanently extend the ILRT interval to 15 years, provided that certain conditions set forth in Section 4.2 of the NRC Staff's safety evaluation are satisfied.<sup>43</sup>

#### **D. Leakage Rate Test Acceptance Criteria**

The acceptance criteria for containment leakage rate tests are typically expressed in terms of the maximum allowable containment leakage rate,  $L_a$ , which would occur at the calculated peak containment internal pressure related to the design-basis loss-of-coolant accident ("LOCA").<sup>44</sup> Plant Technical Specifications typically specify values for  $L_a$  in terms of the allowable weight percent of the containment atmosphere that may leak in 24 hours at the peak containment internal pressure ( $P_a$ ).<sup>45</sup> The acceptance criteria for Type A tests, and the combined Type B and Type C tests, are typically specified as multiples of  $L_a$ .<sup>46</sup> The IP2 maximum allowable containment leakage rate and leakage test acceptance criteria are specified in the plant Technical Specifications.<sup>47</sup> The maximum allowable containment leakage rate ( $L_a$ ) is 0.1 weight percent per day of the containment steam air atmosphere (at 47 pounds per square inch gauge (psig) and 271 degrees Fahrenheit (°F)).<sup>48</sup> The "as-found" ILRT acceptance criterion is  $1.0L_a$ , and the "as-left" ILRT acceptance criterion is  $0.75L_a$ .<sup>49</sup> The five Type A (ILRT) tests performed at IP2 all have been successful; *i.e.*, met the "as-found" acceptance criterion of  $1.0L_a$ .<sup>50</sup>

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<sup>43</sup> See Final Safety Evaluation by the Office of Nuclear Reactor Regulation, Nuclear Energy Institute (NEI) Topical Report (TR) 94-01, Revision 2, "Industry Guideline for Implementing Performance-Based Option of 10 CR Part 50, Appendix J" and Electric Power Research Institute (EPRI) Report No. 1009325, Revision 2, August 2007, "Risk Impact Assessment of Extended Integrated Leak Rate Testing Intervals," Nuclear Energy Institute Project No. 689 (June 25, 2008) (ML081140105).

<sup>44</sup> See 2002 IP2 Safety Evaluation at 2.

<sup>45</sup> See *id.*

<sup>46</sup> See *id.*

<sup>47</sup> See LAR, attachment 2 (Technical Specification 5.5.14).

<sup>48</sup> *Id.*

<sup>49</sup> *Id.* The performance leakage rate is equal to the sum of the measured Type A test upper confidence limit (UCL) and the total as-left minimum pathway leakage rate (MNPLR) of all Type B or Type C pathways isolated during performance of the Type A test. See ANSI/ANS-56.8-2002 (Reaffirmed August 9, 2011), "Containment System Leakage Testing Requirements," Section 3.2.9, "Type A test performance criterion." The "as-found"

**E. The IP2 Containment Leakage Rate Testing Program**

By letters dated August 7, 1996 and March 12, 1997, IP2 submitted a Technical Specification change request to implement Appendix J, Option B. The NRC approved that request as Amendment 190 issued on April 10, 1997. With the approval of the amendment, IP2 transitioned to a performance-based 10-year frequency for the Type A tests. On July 13, 2001 Entergy submitted an amendment request to extend the ILRT interval on a one-time basis from ten years to 15 years. The NRC approved that amendment request, as later supplemented, in Amendment 232 to the license issued on August 5, 2002. The current proposed extension of the primary containment ILRT from ten to 15 years, if approved, would mean that the next scheduled ILRT would need to be completed by March 2021 (instead of March 2016).<sup>51</sup> Entergy previously conducted periodic ILRTs in 1979, 1984, 1987, 1991, and 2006.

**F. Required Code Inspections of the Reactor Containment**

10 C.F.R. Part 50, Appendix J, Option B, paragraph III.A requires that, prior to each Type A test and at a periodic interval between tests based on the performance of the containment system, a general visual inspection of the accessible interior and exterior surfaces of the containment system be performed to identify structural deterioration that may affect the containment leak-tight integrity.<sup>52</sup> In addition, inspections are performed as part of the Containment Inservice Inspection (“ISI”) Plan to implement the requirements of American Society

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performance criterion for a Type A test is met if the performance leakage rate is less than  $1.0L_a$ . The acceptance criterion for the “as-left” Type A test is set at 75% of the allowed leakage rate (*i.e.*,  $0.75L_a$ ), which provides a minimum 25% margin to address the possibility of containment leak tightness degradation over time between Type A tests while continuing to maintain less than the maximum allowable containment leakage rate ( $L_a$ ).

<sup>50</sup> See LAR, attachment 1, at 5-6 (“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 at the design basis loss of coolant accident pressure ( $L_a$ ).”).

<sup>51</sup> Since the last ILRT was completed in April 2006, and the next one would be performed in March 2020 based on the current refueling outage schedule (if the LAR is granted), the actual interval would be about 14 years. See LAR, attachment 1, at 10.

<sup>52</sup> See *id.*

of Mechanical Engineers Boiler and Pressure Vessel Code (“ASME Code”), Section XI, Subsection IWE and IWL.<sup>53</sup> The examinations performed in accordance with the ISI program to meet Subsections IWE and IWL must satisfy the acceptance criteria of IWE-3000 and IWL-3000.<sup>54</sup> The identification and evaluation of inaccessible areas are addressed in accordance with the requirements of 10 C.F.R. § 50.55a(b)(2)(ix).<sup>55</sup>

Each 10-year ISI interval is divided into three approximately equal inspection periods.<sup>56</sup> A minimum of one inspection of the metal containment liner accessible surface areas, as required by the IWE inspection program, is performed during each inspection period (*i.e.*, approximately once every three and one-third years).<sup>57</sup> IWL visual examinations of accessible external concrete containment surfaces are to be completed once every five years, resulting in at least two IWL examinations being performed during a 15-year Type A interval.<sup>58</sup> An “External Containment Structural Visual Inspection” under plant surveillance test 2-PI-2Y001 is performed every two years, and includes documentation of changes in defect dimensions or characteristics for purposes of tracking the condition of the accessible portions of the external containment surfaces, the containment penetrations, and the hatches.<sup>59</sup> The frequency of the examinations to be performed under the IWE/IWL program at IP2 complies with NEI 94-01, Rev. 2-A, Section 9.2.3.2, which

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<sup>53</sup> *See id.*

<sup>54</sup> *See id.*

<sup>55</sup> *See id.*

<sup>56</sup> *See id.*

<sup>57</sup> *See id.*

<sup>58</sup> *See id.*

<sup>59</sup> *See* Letter from Lawrence Coyle, Entergy, to NRC Document Control Desk, NL-15-062, Response to Request for Additional Information Regarding Extending the Containment Type A Leak Rate Testing Frequency (TAC No. MF3369), Indian Point Unit Number 2, Docket No. 50-247, License No. DPR-26 (May 21, 2015), attachment at 1.

specifies the need for general visual examinations during at least three other outages before the next Type A test if the interval is extended to 15 years.<sup>60</sup>

#### **IV. NEW YORK'S PROPOSED CONTENTIONS ARE INADMISSIBLE**

##### **A. Governing Legal Standards for Contention Admissibility**

Petitions to intervene must “set forth with particularity” the contentions a petitioner seeks to have litigated in a hearing.<sup>61</sup> The requirements for an admissible contention are set forth in 10 C.F.R. § 2.309(f)(1)(i)-(vi) and also described in the Hearing Notice.<sup>62</sup> The Commission’s contention admissibility requirements are “strict by design.”<sup>63</sup> They seek “to ensure that NRC hearings ‘serve the purpose for which they are intended: to adjudicate *genuine, substantive safety and environmental* issues placed in contention by qualified intervenors.’”<sup>64</sup> As such, the requirements reflect a deliberate effort to prevent the major adjudicatory delays caused in the past by ill-defined or poorly-supported contentions that were admitted for hearing although “based on little more than speculation.”<sup>65</sup> To warrant an adjudicatory hearing, proposed contentions thus must have “some reasonably specific factual or legal basis.”<sup>66</sup>

Under 10 C.F.R. § 2.309(f)(1), a petitioner must explain the basis for each proffered contention by stating alleged facts or expert opinions that support the petitioner’s position and on

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<sup>60</sup> See LAR, attachment 1, at 10. Tables 4.4-1 and 4.4-2 of the LAR illustrate the current and planned inspection intervals for the IP2 first and second IWE and IWL inspection intervals, respectively. See *id.* at 10-11. IP2 IWE containment inspections for the current fourth ISI interval were performed in 2008 (2R18), 2012 (2R20), and 2014 (2R21). See *id.* The results of those IWE inspections are summarized in Section 4.4.1 of the LAR. See *id.* at 11-12. The most recent IWL inspections were completed in 2005 and 2010, and the results of the IWL inspections are summarized in Section 4.4.2 of the LAR. See *id.* at 12-13.

<sup>61</sup> *PPL Susquehanna, LLC* (Susquehanna Steam Elec. Station, Units 1 & 2), CLI-15-8, 81 NRC \_\_\_, slip op. at 5 (Apr. 14, 2015) (quoting 10 C.F.R. § 2.309(f)(1)).

<sup>62</sup> See Hearing Notice, 80 Fed. Reg. at 13,903-04.

<sup>63</sup> *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 & 3), CLI-01-24, 54 NRC 349, 358 (2001).

<sup>64</sup> *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Unit 2), CLI-03-14, 58 NRC 207, 213 (2003) (quoting *Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 & 3), CLI-99-11, 49 NRC 328, 334 (1999)).

<sup>65</sup> *Susquehanna*, CLI-15-8, slip op. at 5 (quoting *Oconee*, CLI-99-11, 49 NRC at 334).

<sup>66</sup> *Id.* (quoting *Millstone*, CLI-03-14, 58 NRC at 213).

which the petitioner intends to rely in litigating the contention at hearing.<sup>67</sup> To be admissible, the issue raised must fall within the scope of the proceeding and be material to the findings that the NRC must make with respect to the application.<sup>68</sup> A contention, therefore, must provide sufficient information to show a genuine dispute with the applicant on a material issue of law or fact.<sup>69</sup> The contention must refer to the “portions of the application” that the petitioner disputes along with the supporting reasons for each dispute; or, if the petitioner believes that an application fails altogether to contain information required by law, the petitioner must identify each failure and provide supporting reasons for the petitioner’s belief.<sup>70</sup>

**B. Proposed Contention NYS-1 Is Inadmissible Because It Fails to Meet the Requirements of 10 C.F.R. § 2.309(f)(1)(iii)-(vi)**

Proposed Contention NYS-1 claims that Entergy’s LAR does not demonstrate that it complies with 10 C.F.R. §§ 50.40 and 50.92 or 10 C.F.R. Part 50, Appendix J and, therefore, does not provide reasonable assurance of adequate protection for the public health and safety.<sup>71</sup> New York presents six principal arguments or bases in support of its contention, which, for purposes of this response, Entergy refers to as Bases 1 through 6. They are: (1) Entergy has not adequately considered the plant-specific history of the IP2 containment liner;<sup>72</sup> (2) Entergy’s request to postpone the containment integrity testing ignores recent inspections that revealed allegedly “significant” corrosion and other wear in the containment liner;<sup>73</sup> (3) Entergy did not adequately consider “new seismic data”;<sup>74</sup> (4) the LAR poses a “significant hazard consideration” under 10

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<sup>67</sup> 10 C.F.R. § 2.309(f)(1)(ii), (v).

<sup>68</sup> *Id.* § 2.309(f)(1)(iii)-(iv).

<sup>69</sup> *Id.* § 2.309(f)(1)(vi).

<sup>70</sup> *Susquehanna*, CLI-15-8, slip op. at 5 (quoting 10 C.F.R. § 2.309(f)(1)(vi)).

<sup>71</sup> Petition at 5.

<sup>72</sup> *Id.* at 6.

<sup>73</sup> *Id.* at 8.

<sup>74</sup> *Id.* at 10.

C.F.R. § 50.92(c);<sup>75</sup> (5) the LAR relies on Entergy’s allegedly deficient license renewal SAMA analysis;<sup>76</sup> and (6) Entergy’s alleged “desire to reduce costs and maximize revenues also does not justify rolling back this important safety-related test.”<sup>77</sup> As demonstrated below, none of those bases supports the admission of Proposed Contention NYS-1.

**1. Basis 1: Alleged “Unique Degradation” History of the IP2 Containment Liner**

New York asserts that conducting ILRTs at intervals exceeding 10 years is insufficient in view of certain historical “unusual degradation events” involving the IP2 containment liner.<sup>78</sup> Specifically, it cites (1) buckling of the liner during initial plant construction in 1968, (2) deformation of the liner caused by a jet of steam and hot water in 1973, and (3) corrosion of the liner due to a flooding event in 1980.<sup>79</sup> According to New York, these “damaging incidents” make IP2 “ill-suited” for the “relaxed monitoring” proposed by Entergy.<sup>80</sup> New York further asserts that Entergy’s evaluation of the safety risk posed by the reduced ILRT inspection frequency fails to consider the cited history of events affecting the IP2 containment liner.<sup>81</sup> For the reasons discussed below, none of these claims supports the admission of NYS-1.

As a preliminary matter, New York fails to explain how any of these historical events—all of which occurred several decades ago—is germane to the instant LAR, which seeks to extend the ILRT interval by five years in accordance with current NRC regulations and NRC-approved industry guidelines. At a minimum, New York should have provided some assessment, preferably furnished by a qualified technical expert, explaining the significance of these events and how they

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<sup>75</sup> *Id.* at 8.

<sup>76</sup> *Id.* at 19-20.

<sup>77</sup> *Id.* at 10.

<sup>78</sup> *Id.* at 2.

<sup>79</sup> *See id.* at 2, 7-8, 13-15.

<sup>80</sup> *Id.* at 6.

<sup>81</sup> *Id.* at 7.

purportedly bear on the adequacy of the IP2 Containment Leakage Rate Testing Program. Indeed, such an assessment would have been particularly warranted here, given the specific, documented, and confirmed corrective actions taken in response to those events, and the various ILRTs, LLRTs, and visual/volumetric inspections performed to date (which have provided no indications that the IP2 containment is unable to perform its design function of maintaining integrity during accident conditions).<sup>82</sup> Instead, New York relies solely on unsubstantiated claims by counsel, and ignores critical information contained in the very documents it references in its Petition.<sup>83</sup>

For example, New York asserts, without any supporting expert opinion or other credible factual basis, that performing ILRTs for the IP2 containment less frequently than every 10 years “is insufficient to assure that there is a leak-tight barrier against the controlled release of radioactivity to the environment.”<sup>84</sup> However, New York overlooks that there are numerous containment tests and inspections (not just the ILRT) performed in accordance with other plant programs that collectively provide a high degree of assurance against containment degradation. As discussed in Section III, *supra*, 10 C.F.R. Part 50, Appendix J, identifies three types of required tests: Type A (ILRT), Type B, and Type C tests. Further, as stated in the LAR, “Type B and C tests identify the vast majority of potential containment leakage paths.”<sup>85</sup> In fact, when the NRC revised Part 50 in 1995 to provide a performance-based option for containment leakage-rate testing, it specifically noted, based on findings contained in NUREG-1493, that Type B and C

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<sup>82</sup> See *infra*, pp. 16-29; see also LAR, attachment 1, at 5-13 (discussing results of IP2 tests and inspections).

<sup>83</sup> As one Board aptly noted with respect to circumstances present here, “*if no expert opinion or supporting relevant documents* are submitted, any fact-based argument that is provided must be reasonably specific, coherent, and logical, sufficient to show such a dispute and indicate the appropriateness of further inquiry.” *Luminant Generation Co., LLC* (Comanche Peak Nuclear Power Plant, Units 3 & 4), LBP-09-17, 70 NRC 311, 329 (2009) (emphasis added). See also *Kerr-McGee Corp.* (W. Chi. Rare Earths Facility), CLI-82-2, 15 NRC 232, 256 (1982), *aff’d sub nom, City of W. Chi. v. NRC*, 701 F.2d 632 (7th Cir. 1983) (stating that a petitioner “must make some threshold showing that a hearing would be necessary to resolve opposing and supported factual assertions”) (emphasis added).

<sup>84</sup> Petition at 6.

<sup>85</sup> LAR, attachment 1, at 1.

tests are capable of detecting over 97 percent of containment leakages, and that of the 97 percent, virtually all leakages are identified by LLRTs of containment isolation valves (*i.e.*, Type C tests).<sup>86</sup> This was a key consideration in the NRC’s decision to allow the ILRT performance-based option.<sup>87</sup>

In addition to leakage rate tests, Appendix J specifies that visual examinations of the accessible interior and exterior surfaces of containment structures and components be performed prior to any Type A test, and at periodic intervals between Type A tests to identify any evidence of structural deterioration that may affect either the containment structural integrity or leak tightness.<sup>88</sup> Furthermore, the NRC Part 50 regulations mentioned above specify ISI, repair, and replacement requirements that licensees must meet with regard to reactor containment structures and associated pressure- retaining components.<sup>89</sup>

Accordingly, there is no basis for New York’s suggestion that the ILRT is the only means by which a licensee can ensure the containment’s continuing structural integrity and ability to perform its intended safety function.<sup>90</sup> Moreover, there is no basis for New York’s apparent belief that an ILRT interval exceeding 10 years will lead to an unacceptable risk of “an undetected loss of containment integrity” or “reduction in the margin of safety” at IP2.<sup>91</sup>

Significantly, the very documents New York references in its Petition undermine its claims.<sup>92</sup> Specifically, New York cites a number of historical documents as purported evidence

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<sup>86</sup> See Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors, 60 Fed. Reg. at 49,499.

<sup>87</sup> See *id.*

<sup>88</sup> See 10 C.F.R. Part 50, app. J, Option B, sec. III.A.

<sup>89</sup> See 10 C.F.R. § 50.55a(b)(2)(viii), (b)(2)(ix), and (g)(4)(v).

<sup>90</sup> See Petition at 5, 9, 21.

<sup>91</sup> *Id.* at 4, 9.

<sup>92</sup> See *Yankee Atomic Elec. Co. (Yankee Nuclear Power Station)*, LBP-96-2, 43 NRC 61, 90 (1996), *rev’d in part on other grounds*, CLI-96-7, 43 NRC 235 (1996) (stating that any supporting material provided by a petitioner, including those portions thereof not relied upon, is subject to licensing board scrutiny, “both for what it does and does not show”).

for its claims regarding the alleged “unique history of damaging events affecting the IP2 containment liner.”<sup>93</sup> As discussed below, those documents actually demonstrate that the 1968, 1973, and 1980 incidents cited by New York have *not* compromised the integrity of the IP2 containment liner.

1968 Liner Buckling: The first historical incident cited by New York occurred in 1968 during the initial construction of IP2—47 years ago. Specifically, during construction of the welded steel liner on the IP2 containment structure, a buckle or liner deformation was observed in the vicinity of the fuel transfer tube canal penetration.<sup>94</sup> Plant construction specification 9321-01-225-3, “Containment Building Liner,” allowed a two-inch tolerance for local buckling.<sup>95</sup> Field measurements taken in the buckled zone indicated two points at which the acceptable limits were exceeded by 1/8-inch and 5/16-inch, respectively.<sup>96</sup>

As stated in the January 1968 licensee-prepared report cited by New York, it was “concluded that the integrity of the liner has not been violated.”<sup>97</sup> The report explains that because the liner material is highly ductile, and the liner is deflection-limited by the reinforced concrete-wall, strains in the liner will remain elastic and the leak proof integrity of the liner is maintained under all anticipated conditions.<sup>98</sup> It further states that the engineers and constructors decided, in any case, to install a system consisting of a combination of a “strongback” and stud anchors to prevent additional buckling of these points under compressive loadings (by holding the liner to the

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<sup>93</sup> Petition at 7.

<sup>94</sup> “Report on the Containment Building Liner Plate Buckle in the Vicinity of the Fuel Transfer Canal,” Indian Point Generating Station Unit No. 2 (Jan. 1968), at 1 (ML093521587).

<sup>95</sup> *See id.* at 3.

<sup>96</sup> *See id.*

<sup>97</sup> *Id.* at 2.

<sup>98</sup> *Id.*

concrete).<sup>99</sup> Following repair of the liner bulge, leak tests were performed on the channels in the affected area, and magnetic particle inspection was made of all weld channel fillet welds in the same area.<sup>100</sup> The weld channel system passed the leak and magnetic-particle tests, and the liner was determined to within the allowable tolerances at all points.<sup>101</sup> Thus, nothing in the 1968 report cited by New York indicates that the IP2 liner fails to “conform with the applicable specifications” or is subject to “unusual stresses.”<sup>102</sup>

1973 Liner Deformation: The second incident cited by New York involved slight inward deformations of portions of the IP2 containment liner above the feedwater pipe penetrations that occurred as a result of the November 13, 1973 failure of a section of the feedwater line to Steam Generator No. 22. New York references four documents in connection with this event, each of which contradicts New York’s claims of a structurally-compromised containment liner. The first document is a November 30, 1973 letter from Consolidated Edison (“Con Edison”), the previous IP2 licensee, to the Atomic Energy Commission (“AEC”), providing supplemental information concerning the incident.<sup>103</sup> Among other things, that letter states that: “There is no visual

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<sup>99</sup> See *id.* at 8.

<sup>100</sup> See *id.* at 2.

<sup>101</sup> See *id.*

<sup>102</sup> Petition at 13, 14. Furthermore, the Commission necessarily inspected and approved the final, as-built design of the IP2 containment structure, including the steel liner, before authorizing fuel load and plant operation. See Safety Evaluation by the Division of Reactor Licensing, U.S. Atomic Energy Commission, In the Matter of Consolidated Edison Company of New York, Incorporated, Indian Point Nuclear Generating Unit No. 2, Buchanan, New York, Docket No. 50-247 (Nov. 16, 1970) (ML072260449); Supplement No. 1 to AEC Regulatory Staff Safety Evaluation, In the Matter of Consolidated Edison Company, Indian Point Nuclear Generating Plant Unit 2, Docket No. 50-247 (Nov. 20, 1970) (ML072260452); Supplement No. 2 to AEC Regulatory Staff Safety Evaluation, In the Matter of Consolidated Edison Company, Indian Point Nuclear Generating Plant Unit 2, Docket No. 50-247 (July 1971) (ML072260453). Notably, the Commission’s November 1970 safety evaluation report (“SER”) (page 81) references the January 1968 report discussed above, and Supplement 1 to the SER (Appendix A, page 1) indicates that the NRC reviewed corrective actions related to the containment liner bulge during a site inspection. Supplement 1 (page 15) specifically states that “[b]ased on our inspections to date, we conclude that there is reasonable assurance that the containment and other Class I structures will be completed in accordance with AEC regulatory requirements.”

<sup>103</sup> See Letter from William J. Cahill, Jr., Consolidated Edison, to James P. O’Reilly, AEC (Nov. 30, 1973) (ML093560700).

evidence of any reduction in containment liner integrity. In addition, the weld channel penetration and pressurization system air consumption in this area of containment following the incident was normal.”<sup>104</sup>

The second document cited by New York is Con Edison’s “Feedwater Line Incident Report – Indian Point Unit No. 2,” dated January 14, 1974.<sup>105</sup> The report notes that in response to the event, Con Edison performed a survey of the liner profile, ultrasonic testing of liner studs, magnetic particle inspection of the liner, bend tests, and pressure and leak tests.<sup>106</sup> Importantly, the report states that throughout and subsequent to the incident, there was no evidence of any reduction in containment liner integrity, and that the weld channel penetration and pressurization system air consumption in the affected area of containment following the incident was normal.<sup>107</sup> It further states that the results of a Type B leakage test performed following the replacement of the pipe and endplates in the Line No. 22 feedwater penetration “indicated that the leakage was small and acceptable for continued service and safe operation of the facility.”<sup>108</sup> Appendix IV of the report contains a detailed analysis of the containment liner, and concludes that the integrity of the deformed liner area had not been violated by the incident.<sup>109</sup>

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<sup>104</sup> *Id.* at 5.

<sup>105</sup> *See* Consolidated Edison Company of New York, Inc., “Feedwater Line Incident Report – Indian Point Unit No. 2” (Jan. 14, 1974) (ML100200180).

<sup>106</sup> *See id.* at 4-8 to 4-24.

<sup>107</sup> *Id.* at 3-2.

<sup>108</sup> *Id.* at 4-24. Section 6 of the report discusses the various modifications and repairs to the liner. An additional 18 feet of insulation was added above the pipe break area completely around the inside of containment to preclude local heating and the resultant bulging similar to that which occurred with the incident. In the vicinity of feedwater and steam lines, the insulation was extended an additional eight feet. The failed section of feedwater piping was removed and replaced with a new section extending from the first elbow outside containment through the penetration, to near the first elbow inside containment. The containment penetration end plates and expansion joints were replaced. *See id.* at 6-3 to 6-4.

<sup>109</sup> *See id.*, app. IV at IV-29.

The third document referenced in the Petition is a March 12, 1974 follow-up letter from Con Edison to the AEC.<sup>110</sup> The concluding paragraph of the letter states that, based on the results of the special liner leakage test and other tests and analyses performed on the containment liner,<sup>111</sup> “Con Edison concludes that the effects of the feedwater incident which occurred on November 13, 1973 did *not* impair the ability of the containment liner to perform its function and that the original acceptance criteria for containment leakage are still satisfied.”<sup>112</sup>

Finally, the fourth document cited by New York is an April 15, 1974 internal AEC letter documenting the agency’s regulatory evaluation of the structural portions of the January 14, 1974 Feedwater Line Incident Report.<sup>113</sup> As reflected in this document, the AEC agreed with Con Edison’s conclusion that “the damage to the liner has not impaired its integrity and that it can perform its function with an adequate margin of safety.”<sup>114</sup>

New York does not challenge any of the conclusions contained in the aforementioned documents. As it correctly notes, in the April 15, 1974 letter, the AEC stated that increased attention should be given to the surveillance of the liner during the life of the plant, and that the

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<sup>110</sup> See Letter from Letter from William J. Cahill, Jr., Consolidated Edison, to James P. O’Reilly, Atomic Energy Commission (March 12, 1974) (ML093560204).

<sup>111</sup> As discussed in the March 12, 1974 letter, Con Edison initially had performed two special leak rate tests, during which containment pressure was increased gradually to 47 psig and stabilized at that pressure, in order to verify the containment liner integrity following the slight bulging that resulted from the feedwater incident. *See id.* at 1 & attachment 1. The leakage was determined to be approximately 0.029% per day of the containment free volume, which is well within both the design leakage limit of 0.1% per day and the more restrictive criterion for the test of 0.04% per day. *See id.* at 1. Con Edison also performed a third special leakage test with the Containment Weld Channel and Penetration Pressurization System (WC&PPS) (described in Section III.A above). The results of that test, when analyzed in conjunction with the results of the first two tests, yielded a still-acceptable leak rate of 0.034% per day. *See id.* at 1 & attachment 2.

<sup>112</sup> *Id.* at 2 (emphasis added).

<sup>113</sup> Letter from R.R. Maccary, Assistant Director for Engineering, Directorate of Licensing, AEC, to Donald J. Skovholt, Assistant Director for Operating Reactors, Directorate of Licensing, AEC, Consolidated Edison Company of New York, Inc., Indian Point Stations, Unit #2 – “Feedwater Line Incident” Report Dated January 14, 1974 (TAR-805), Structural Evaluation of the Liner Damage (April 15, 1974) (ML093630690).

<sup>114</sup> *Id.* at 1. *See also id.*, encl. at 3-4 (“The applicant’s conclusions are that the deformations of the liner due to the pipe break did not damage the liner and that the liner capacity to fulfill its functions in the case of LOCA is not impaired. We concur with this conclusion.”).

frequency of the leakage tests required by the Technical Specification should be increased.<sup>115</sup>

That fact, however, does not undermine the robust technical justification for the requested ILRT interval extension contained in the LAR, including the plant-specific PRA-based risk impact assessment. The AEC’s recommendation regarding increased testing frequency was made over 40 years ago based on the information and technical knowledge then available to it. Unsurprisingly, since that time, the NRC’s and industry’s understanding of containment-related phenomena and integrated leakage rate testing has increased substantially as a result of subsequent technical studies and four decades of operating experience. Indeed, it is that enhanced understanding and additional operating experience that led the NRC to issue in 1995 “a new risk-based regulation based on the performance history of components (containment, penetrations, valves) as the means to justify an increase in the interval for Type A, B, and C tests,”<sup>116</sup> and to approve one-time and permanent extensions of the ILRT interval from 10 to 15 years for various plants—including IP2 and IP3.<sup>117</sup>

1980 Flood-Related Corrosion: The third historical incident mentioned by New York occurred on October 17, 1980. As noted in NRC IE Information Notice No. 80-37, personnel entering the IP2 containment to make a component repair discovered that water from leaking service water pipes had accumulated on the containment floor.<sup>118</sup> Citing the NRC Staff’s safety evaluation for the 2002 license amendment that allowed a “one-time” extension of the IP2 ILRT interval from 10 to 15 years, New York states that this event resulted in the corrosion of the containment liner at the 46 ft. elevation, where it meets the concrete containment floor.<sup>119</sup>

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<sup>115</sup> See *id.*, encl. at 4.

<sup>116</sup> Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors, 60 Fed. Reg. at 49,999.

<sup>117</sup> See *supra*, n.12.

<sup>118</sup> See NRC Office of Inspection and Enforcement, IE Information Notice No. 80-37: Containment Cooler Leaks and Reactor Cavity Flooding at Indian Point Unit 2 (Oct. 25, 1980) (ML031180421).

<sup>119</sup> Petition at 15.

New York again ignores those portions of the document that undercut its argument. The NRC Staff’s safety evaluation for the 2002 ILRT-related license amendment specifically discusses the 1980 containment flooding event.<sup>120</sup> It notes that during the 2000 refueling outage, Entergy examined the IP2 containment liner plate in accordance with ASME Code requirements as part of an ISI program inspection.<sup>121</sup> Specifically, Entergy performed ultrasonic testing (“UT”) of the liner plates near the 46 ft. elevation (containment concrete floor) to determine the extent of corrosion.<sup>122</sup> The areas examined included all locations at which there was degradation of the moisture barrier or the concrete floor.<sup>123</sup> The measured liner thicknesses were greater than the conservatively specified minimum liner thickness (0.34 in.) required to maintain containment pressure boundary integrity.<sup>124</sup> Entergy also repaired the moisture barrier seal (between the concrete containment floor and the insulation mounted on the containment wall in areas where it had deteriorated) to prevent any further corrosion of the liner below the cylinder/containment floor interface.<sup>125</sup>

Based on its review of the examination results, the Staff found reasonable assurance that the examinations had identified the minimum liner thickness in the areas where the liner is most likely to have been affected by the 1980 flooding event.<sup>126</sup> It further concluded that “the structural integrity of the containment is acceptable because the remaining liner thickness is sufficient to withstand the loading associated with design-basis accident conditions.”<sup>127</sup> Also noting Entergy’s

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<sup>120</sup> See 2002 IP2 Safety Evaluation at 8-10, 14 (ML021860178).

<sup>121</sup> See *id.* at 8.

<sup>122</sup> See *id.*

<sup>123</sup> See *id.*

<sup>124</sup> See *id.*

<sup>125</sup> See *id.* at 9.

<sup>126</sup> See *id.* at 8.

<sup>127</sup> *Id.*

planned future re-inspections of the affected areas, the Staff found “the licensee’s approach for ensuring that the integrity of the containment liner will be maintained to be acceptable.”<sup>128</sup>

In summary, insofar as it relies on Basis 1, NYS-1 fails to satisfy the criteria of 10 C.F.R. § 2.309(f)(1)(iv), (v) and (vi). New York fails to: (1) establish that the various historical events discussed in its Petition are material to the Staff’s findings on the instant LAR; (2) provide any support for its claim that the structural integrity and intended function of the IP2 containment liner have been compromised; and (3) explain why the LAR is deficient when evaluated under the NRC’s current ILRT requirements and related NRC-approved guidelines.

## **2. Basis 2: Alleged Insights from Previous Tests and Inspections**

Despite the contrary evidence discussed above, New York asserts that more recent inspections of the IP2 containment surfaces, including the containment liner, “confirm that the liner and related surfaces have been harmed by the historical accidents.”<sup>129</sup> For example, citing the 2002 NRC safety evaluation report discussed above, New York states that visual and UT inspections of the liner plate conducted during the 2000 refueling outage revealed coating deterioration and corrosion.<sup>130</sup> It further states that during IWE inspections performed in 2008, 2012, and 2014, inspectors observed general surface corrosion, minor coating peeling/flaking, blistered paint, as well as loose or buckling stainless steel insulation panels.<sup>131</sup> New York posits that because the last ILRT was performed in 2006, it is unknown whether the indications observed in these visual inspections “would result in the failure of an ILRT.”<sup>132</sup>

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<sup>128</sup> *Id.* at 9.

<sup>129</sup> Petition at 17.

<sup>130</sup> *See id.* at 17-18.

<sup>131</sup> *See id.* at 18.

<sup>132</sup> *Id.* at 18-19.

As an initial matter, it bears emphasis that the limited surface corrosion and conditions cited by New York were identified during IWE visual inspections, the frequency of which is unaffected by the LAR. In addition, New York fails to explain why or how any of the observed conditions could “result in the failure of an ILRT.”<sup>133</sup> Finally, New York’s arguments again are belied by the “supporting evidence” on which it purports to rely. As discussed above, the NRC Staff’s 2002 safety evaluation report concluded that the structural integrity of the containment liner is acceptable despite some observed liner corrosion.<sup>134</sup> The later (*i.e.*, 2008, 2012, and 2014) IWE inspections are specifically discussed in Entergy’s LAR, which contains the following uncontroverted findings and conclusions:

- Refueling Outage 2R18 (2008) Containment Inservice Inspection: The general surface corrosion, minor coating peeling/flaking, and blistered paint were previously identified and evaluated. These conditions were a repeat of previous inspections and were minor with no change and therefore acceptable. The condition of the buckling locations and looseness on the VC liner plate insulation (columns 10 and 11 elevation 68 feet) was documented in the Corrective Action Program as Condition Report CR-IP2-2008-01892. Civil Engineering performed an inspection of the stainless steel insulation jacket and has determined that all but two of the insulation jacket issues are acceptable. The two areas not acceptable were repaired during 2R18 outage.<sup>135</sup>
- Refueling Outage 2R20 (2012) Containment Inservice Inspection: All of the conditions noted during this inspection did not result in any structural degradation that adversely affects the ability of the containment to perform its design function of maintaining integrity during accident conditions.<sup>136</sup>
- Refueling Outage 2R21 (2014) Containment Inservice Inspection: Most of the findings were a repeat of previous inspections and were minor with no change and therefore acceptable. All non-destructive examination (“NDE”) reports were accepted during the 2014 containment inspection therefore no condition reports were generated.<sup>137</sup>

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<sup>133</sup> *Id.* at 19.

<sup>134</sup> *See* 2002 IP2 Safety Evaluation at 8-9 (ML021860178).

<sup>135</sup> *See* LAR, attachment 1, at 11-12.

<sup>136</sup> *See id.* at 12.

<sup>137</sup> *See id.* The LAR (Section 4.4.2) also discusses the results of IWL general visual inspections performed in 2005 and 2010. It states that all of the recordable indications identified during the inspections have been evaluated, and that none of them is a structural concern or reduces the structural capacity or ability of the containment structure to perform its safety function. *See id.* at 12-13.

New York also cites the results for the five ILRTs discussed in the LAR, as performed between August 1979 and April 2006.<sup>138</sup> Quoting an NRC Staff RAI issued to Entergy on April 28, 2015, New York states that “As found Leakage” measured during the five ILRTs is on a continuous trend towards eclipsing the IP2 Technical Specification 5.5.14.d.1 leakage rate acceptance criteria of  $\leq 0.75L_a$  (*i.e.*, 0.075 percent containment air weight per day).<sup>139</sup> Based on simple extrapolation of the data, New York states that the expected leakage rate for an ILRT conducted in 2016 would be 0.078, “exceeding the current Technical Specification’s leakage rate acceptance criteria of  $= 0.75L_a$ .”<sup>140</sup>

That argument also lacks adequate support and fails to raise a genuine dispute on a material issue of fact or law.<sup>141</sup> New York “must do more than rest on the mere existence of RAIs as a basis for [its] contention,”<sup>142</sup> because the issuance of an RAI “does not alone establish deficiencies in the application, or that the NRC Staff will go on to find any of the Applicant’s clarifications, justifications, or other responses to be unsatisfactory.”<sup>143</sup> Indeed, in CLI-15-8, the Commission recently reiterated that RAIs are a “routine means” for the Staff to ask for clarification or additional corroborating information from an applicant.<sup>144</sup> They reflect follow-up

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<sup>138</sup> See Petition at 16-17.

<sup>139</sup> See *id.* at 17; Letter from Douglas V. Pickett, NRC, to Vice President, Operations, Entergy Nuclear Operations, Inc., Indian Point Energy Center, Indian Point Nuclear Generating Unit No. 2 – Request for Additional Information Regarding the Proposed License Amendment to Permanently Extend the Containment Type A Leak Rate Test Frequency to 15 Years (TAC No. MF8382) (Apr. 28, 2015) (ML15103A259).

<sup>140</sup> Petition at 17.

<sup>141</sup> See 10 C.F.R. § 2.309(f)(1)(v), (vi).

<sup>142</sup> *Oconee*, CLI-99-11, 49 NRC at 336.

<sup>143</sup> *Id.*

<sup>144</sup> *Susquehanna*, CLI-15-8, slip op. at 8 (quoting *Oconee*, CLI-99-11, 49 NRC at 336).

questions, an ongoing dialogue between the Staff and applicant.<sup>145</sup> As such, “[r]arely will pointing to an RAI, without more, suffice as support for an admissible contention.”<sup>146</sup>

In any case, a contention alleging an error or omission in an application must establish some significant link between the claimed deficiency and protection of the health and safety of the public or the environment.<sup>147</sup> In other words, the petitioner must make at least a “minimal demonstration” that the application under review “fails to meet a statutory or regulatory requirement.”<sup>148</sup> New York has not done so here through its reference to the Staff’s RAI and simple extrapolation of the five available ILRT data points.

Specifically, as reflected in the LAR and further explained in Entergy’s June 8, 2015 response to the NRC Staff’s RAI, all five of the ILRTs conducted at IP2 between August 1979 and April 2006 have satisfied the “as-found” leakage acceptance criterion of 1.0L<sub>a</sub>, as specified in IP2 Technical Specification 5.5.14.<sup>149</sup> 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.<sup>150</sup> Thus, Entergy does not believe that the IP2 Type A ILRT test

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<sup>145</sup> *Id.* (citing *Oconee*, CLI-99-11, 49 NRC at 336).

<sup>146</sup> *Id.*

<sup>147</sup> *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 & 3), LBP-04-15, 60 NRC 81, 89, *aff’d*, CLI-04-36, 60 NRC 631 (2004).

<sup>148</sup> *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 & 3), LBP-08-13, 68 NRC 43, 187 (2008).

<sup>149</sup> See LAR, attachment 1 at 5-6; Letter from Lawrence Coyle, Entergy, to NRC Document Control Desk, NL-15-068, Response to Request for Additional Information Regarding License Amendment to Permanently Extend the Frequency of the Containment Integrated Leak Rate Test (TAC No. MF3369), Indian Point Unit Number 2, Docket No. 50-247, License No. DPR-26 (June 8, 2015) (“June 8, 2015 RAI Response”), attachment at 5. As of the date of this filing, the June 8, 2015 RAI Response had not yet been placed in ADAMS. Accordingly, Entergy has appended the June 8, 2015 RAI Response as Attachment 1 hereto, but for the sake of economy, has excluded the associated 300-plus pages of enclosures, which include the IP2 ILRT procedure (2-PT-10Y001, Rev. 2) and historical ILRT testing results.

<sup>150</sup> See June 8, 2015 RAI Response, attachment at 5.

results since August 1979 indicate that the IP2 containment is degrading or constitutes an adverse trend requiring corrective action.<sup>151</sup>

Furthermore, even if the next “as-found” leakage is determined to be  $0.78L_a$ , which New York predicts for an ILRT performed in 2016 based on its extrapolation of the current data, that value still will be less than the applicable “as found” acceptance criterion of  $1.0L_a$ . In fact, even if the data are extrapolated to 2021 using New York’s approach, the resulting “as-found” leakage rate value would be  $0.85L_a$ , which still is less than the acceptance criterion of  $1.0L_a$ .<sup>152</sup> Importantly, if the measured as-found leakage exceeded  $1.0L_a$ , then Unit 2 could not resume operations, and Entergy would need to take appropriate corrective actions, including more frequent testing.<sup>153</sup> In addition, the IP2 Containment Leakage Rate Testing Program requires that the “as left” criterion of  $0.75L_a$  be met prior to plant restart, to ensure that there is sufficient margin to accommodate potential degradation that could increase the containment leakage rate before the next ILRT is performed.<sup>154</sup> Thus, in view of the above, New York has not shown that

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<sup>151</sup> See *id.*

<sup>152</sup> See *id.*

<sup>153</sup> See *id.* at 5-6. As noted in Entergy’s June 8, 2015 RAI Response (attachment at 5-6), NEI 94-01, Rev. 2-A specifically states:

The performance criterion for Type A tests is a performance leakage rate (as defined in this guideline) of less than  $1.0L_a$ . . . Type A testing shall be performed at a frequency of at least once per 15 years. 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. Following these successful Type A tests, the surveillance frequency may be returned to at least once per 15 years.

NEI 94-01, Rev. 2-A, at iv (emphasis added).

<sup>154</sup> See June 8, 2015 RAI Response, attachment at 5.

the LAR fails to meet a statutory or regulatory requirement or identified any substantive safety issue.<sup>155</sup>

### 3. Basis 3: Alleged Effect of the “Elevated” Seismic Hazard

Referring to ongoing analyses done in connection with the NRC’s various post-Fukushima initiatives, New York accuses Entergy of ignoring “recent updates indicating elevated seismic hazards at the Indian Point site” and not adequately considering “the risk that the degraded containment liner and related containment systems and components . . . will fail as a result of seismic activity at IP2.”<sup>156</sup> Specifically, New York states that new, revised seismic curves show that “the anticipated ground motion is larger for higher frequency events than was understood when IP2 received its operating license in 1973,”<sup>157</sup> and this has led the NRC Staff to designate IP2 as “Priority Group 1” plant for purposes of the NRC’s and industry’s ongoing Fukushima-related seismic hazard re-evaluations.<sup>158</sup>

Basis 3 is not adequately supported and fails to explain why the LAR suffers from any defect, much less a material defect warranting further exploration by the Board.<sup>159</sup> To begin with, New York ignores the NRC’s unequivocal statement, in the May 21, 2014 NRC internal memorandum cited by New York, that “the NRC considered the re-evaluated hazard and previous estimates of plant capacity to conclude that *this plant is safe to continue operating while*

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<sup>155</sup> *Indian Point*, 68 NRC at 187 (stating that the NRC’s contention admissibility rules require a petitioner to make at least a “minimal demonstration” that the application “fails to meet a statutory or regulatory requirement”).

<sup>156</sup> Petition at 1, 10.

<sup>157</sup> *Id.* at 15.

<sup>158</sup> *Id.* at 16. NRC power reactor licensees have performed seismic hazard re-evaluations in response to an NRC request for information issued on March 12, 2012, pursuant to 10 C.F.R. § 50.54(f).

<sup>159</sup> *See Crow Butte Res., Inc.* (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 553 (2009) (noting that when a petitioner neglects to provide the requisite support for its contentions, a licensing board may not make assumptions of fact that favor the petitioner or supply information that is lacking).

*additional evaluations are conducted.*”<sup>160</sup> Consequently, there has been no change to the IP2 seismic design basis as a result of the *ongoing* seismic re-evaluation. Thus, there is no basis for New York’s apparent belief that the IP2 containment structure and liner are somehow now more susceptible to seismically-induced failure that could lead to an unacceptable radiological release.

Additionally, if a petitioner believes that an application does not adequately address a relevant issue, then the petitioner must “explain why the application is deficient.”<sup>161</sup> New York has not done so here. Citing pages of 5-26 to 5-31 of the confirmatory risk analysis submitted by Entergy in support of the LAR, New York merely avers that “[t]he LAR does not address these new seismic data.”<sup>162</sup> It makes no attempt to explain why the “new seismic data” are relevant to the ILRT LAR or associated risk analysis; how, if at all, they might be considered within the context of those documents; and what impact, if any, they might have on the risk analysis results.<sup>163</sup> Given that the IP2 seismic design basis has not changed as a result of the new, revised seismic curve, there is no basis for including the “new seismic data” in the LAR risk impact evaluation. Here, counsel for New York merely speculates, with no technical or expert opinion

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<sup>160</sup> Memorandum from Scott C. Flanders, NRC, to David Skeen, NRC, Subject: Support Document for Screening and Prioritization Results Regarding Seismic Hazard Re-Evaluations for Operating Reactors in the Central and Eastern United States (May 21, 2014), encl. (inset to preliminary ground motion response spectra (GMRS) comparison plot for Indian Point Unit 2) (emphasis added) (ML14136A126). In making this statement, the NRC Staff referenced its May 9, 2014 letter to Entergy and other reactor licensees informing them of the NRC’s seismic screening and prioritization determinations and expectations regarding further seismic risk evaluations. *See* Letter from Eric Leeds, NRC, to All Power Reactor Licensees and Holders of Construction Permits (May 9, 2014) (ML14111A147). The May 9, 2014 letter explains that based on its review of a March 12, 2014 EPRI fleet-wide seismic risk and design margin study and each licensee’s March 2014 plant-specific interim evaluation, the Staff “confirmed that the conclusions reached in [Generic Issue]-199 safety/risk assessment remain valid and that the plants can continue to operate while additional evaluations are conducted.” *Id.* at 2.

<sup>161</sup> Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process, 54 Fed. Reg. at 33,170.

<sup>162</sup> Petition at 10.

<sup>163</sup> In this regard, New York does not directly take issue with any statement in the risk impact assessment prepared by Entergy vendor ERIN Engineering. For example, the risk impact assessment report states that the seismic risk contribution of 1.06E-05/yr used in the risk impact assessment was obtained from the seismic portion of the IP2 IPEEE, which “was a conservative analysis.” LAR, attachment 3, at 5-27.

support, that there is a greater risk that the containment liner “will fail as a result of seismic activity at IP2.”<sup>164</sup>

In view of the above, NYS-1 fails to meet the contention admissibility requirements in 10 C.F.R. § 2.309(f)(1)(iii)-(vi) insofar as it relies in Basis 3 for support.

#### **4. Basis 4: Alleged Existence of Significant Hazards Consideration**

New York further asserts that, contrary to Entergy’s and the NRC Staff’s conclusions, the LAR poses a significant hazard consideration under 10 C.F.R. § 50.92(c).<sup>165</sup> New York makes two arguments in support of that assertion. First, it claims that the requested ILRT interval extension “increases the consequences of a release of radiation from the reactor, since any such release might escape containment and reach the environment and citizens of the State in amounts that exceed NRC safety standards.”<sup>166</sup> Second, New York claims that the LAR involves a “significant reduction in a margin of safety” under 10 C.F.R. § 50.92(c)(3) because reducing the frequency of ILRTs “necessarily reduc[es] the margin of safety for containment integrity.”<sup>167</sup>

Basis 4 fails to support the admission of NYS-1 for multiple reasons. As a threshold legal matter, 10 C.F.R. § 50.58(b)(6) explicitly bars the type of challenge raised by New York here. It states: “No petition or other request for review of or hearing on the Staff’s significant hazards consideration determination will be entertained by the Commission.”<sup>168</sup> As stated in the Hearing Notice, the NRC reviewed Entergy’s significant hazards consideration analysis in the LAR, and concluded that the standards of 10 C.F.R. § 50.92(c) are satisfied. Therefore, it “propose[d] to

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<sup>164</sup> Petition at 10.

<sup>165</sup> *Id.* at 8-9.

<sup>166</sup> *Id.* at 9.

<sup>167</sup> *Id.*

<sup>168</sup> 10 C.F.R. § 50.58(b)(6).

determine that the amendment request involves no significant hazards consideration.”<sup>169</sup> As another licensing board noted recently noted, “[a] ‘no significant hazards consideration’ determination is a procedural decision barred from litigation pursuant to 10 C.F.R. § 50.58(b)(6) and licensing board precedent.”<sup>170</sup> Accordingly, Petitioners’ argument is outside of the Board’s jurisdiction, and is not subject to challenge in this proceeding.<sup>171</sup>

Even assuming New York’s challenge to the Staff’s proposed no significant hazards consideration determination was procedurally permissible (which it is not), the challenge is devoid of factual or technical support. In short, New York relies solely on speculation by counsel and claims that Entergy already has shown above to be groundless, *viz.*, the alleged “unique degradation” history of the IP2 containment liner (including “wear and degradation” observed during more recent tests and inspections);<sup>172</sup> the IP2 containment’s “trending towards failing an ILRT by 2016”;<sup>173</sup> and the purportedly “elevated seismic hazards” at the Indian Point site.<sup>174</sup> Further, New York fails to controvert *any* aspect of Entergy’s no significant hazards consideration analysis (as contained in the LAR and described in the Hearing Notice), which contains a number of key technical points that undermine various claims made by New York in its Petition:

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<sup>169</sup> Hearing Notice, 80 Fed. Reg. at 13,906.

<sup>170</sup> *Entergy Nuclear Operations, Inc. (Palisades Nuclear Plant)*, LBP-15-17, 81 NRC \_\_ (May 18, 2015) (slip op. at 44) (citing *Entergy Nuclear Vt. Yankee, LLC et al. (Vt. Yankee Nuclear Power Station)*, LBP-04-28, 60 NRC 548, 560-61 (2004)). See also *Carolina Power & Light Co. (Shearon Harris Nuclear Power Plant)*, CLI-01-7, 53 NRC 113, 118 (2001) (holding that intervenor challenges on this topic will be summarily rejected: “Our regulations provide that ‘[n]o petition or other request for review of or hearing on the Staff’s no significant hazards consideration determination will be entertained by the Commission.’ . . . The regulations are quite clear in this regard.”) (quoting 10 C.F.R. § 50.58(b)(6)); *Vt. Yankee Nuclear Power Corp. (Vt. Yankee Nuclear Power Station)*, LBP-90-6, 31 NRC 85, 90-91 (1990) (“The issue of whether the proposed amendment does or does not involve a significant hazards consideration is not litigable in any hearing.”) (citing *Pac. Gas & Elec. Co. (Diablo Canyon Nuclear Power Plant, Units 1 & 2)*, CLI-86-12, 24 NRC 1, 4-5 (1986), *rev’d and remanded on other grounds sub nom. San Luis Obispo Mothers for Peace v. NRC*, 799 F.2d 1268 (9th Cir. 1986)); *Fla. Power & Light Co. (Turkey Point Nuclear Generating Plant, Units 3 & 4)*, LBP-89-15, 29 NRC 493, 495-96 (1989).

<sup>171</sup> See 10 C.F.R. § 2.309(f)(iii).

<sup>172</sup> Petition at 19, 21.

<sup>173</sup> *Id.* at 9, 21.

<sup>174</sup> *Id.* at 1.

- The proposed amendment 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. Nor does it alter the manner in which safety limits, limiting safety system setpoints, or limiting conditions for operation are determined.<sup>175</sup>
- 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 and do not involve any accident precursors or initiators.<sup>176</sup>
- 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. The specific requirements and conditions of the Containment Leakage Rate Testing Program, as defined in the 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.<sup>177</sup>
- Entergy’s confirmatory risk assessment using the IP2 PRA model concludes that extending the ILRT test interval from ten years to 15 years results in a very small change to the risk profile. Further, Entergy has determined that the increase in conditional containment failure probability due to the proposed change would be very small.<sup>178</sup>

**5. Basis 5: Alleged Reliance on Erroneous Information from the IP2 License Renewal SAMA Analysis**

New York claims that the LAR is deficient because it purportedly relies on certain information obtained from the SAMA analysis prepared as part of the IP2 license renewal application.<sup>179</sup> New York asserts—again without reference to any supporting technical analysis or expert opinion—that the SAMA analysis “omits important considerations and contains erroneous assumptions and inputs” that “work to undercount the costs of an offsite radiation release and therefore skew the cost benefit analysis in favor of the requested amendment.”<sup>180</sup> In particular, it claims that the SAMA analysis: (1) does not take into account the value or decontamination cost of offsite properties with iconic value, natural resources, or critical infrastructure; (2) “artificially

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<sup>175</sup> See LAR, attachment 1, at 17-18.

<sup>176</sup> See *id.* at 17.

<sup>177</sup> See *id.* at 17-18.

<sup>178</sup> See *id.* at 17-18.

<sup>179</sup> See Petition at 19-20.

<sup>180</sup> *Id.* at 19.

and improperly limits” its scope to land and population only within 50 miles of the site; and (3) relies on an outdated dollar per person-rem value of \$2,000.<sup>181</sup>

Basis 5 does not support NYS-1 because it fails to provide an adequately supported and reasoned statement of why the LAR is unacceptable in some material respect.<sup>182</sup> First, New York provides nothing—no credible facts, supporting references, or expert opinion—to support its statements regarding the license renewal SAMA analysis. Second, it fails to establish any nexus between its (unsubstantiated) criticisms of the license renewal SAMA analysis and the contents of the LAR, particularly the risk impact assessment.

Entergy can discern no such nexus given the vagueness of New York’s claims and its failure to explain with particularity how those claims relate to the assumptions and methods actually used in the risk impact assessment. Insofar as the risk impact assessment discusses the IP2 license renewal SAMA analysis, it makes the following points:

- External events were accounted for in the risk impacts analysis based on the available information from the IP2 IPEEE, as reported and used in the license renewal SAMA analysis; *i.e.*, the external events CDF contribution values used in the risk impact assessment for the relevant external event initiator groups (seismic, internal fire, high winds) are consistent with those used in the SAMA analysis.<sup>183</sup>
- Since the most current external events models for IP2 and IP3 are those embodied in the IPEEE, a multiplier was applied to the internal events results based on the IPEEE, similar to that used in the SAMA analysis.<sup>184</sup>
- Dose results for the containment failures modeled in the PRA can be characterized by information that was prepared to support the license renewal SAMA analysis. This information was supplemented with revised calculations for the base case containment intact scenarios, which are critical for use in the ILRT extension assessment.<sup>185</sup>

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<sup>181</sup> *Id.* at 20.

<sup>182</sup> *See Fla. Power & Light Co. (Turkey Point Nuclear Generating Plant, Units 3 & 4)*, LBP-90-16, 31 NRC 509, 521, 521 n.12 (1990).

<sup>183</sup> *See* LAR, attachment 3, at 5-26 to 5-29.

<sup>184</sup> *See id.* at 5-26.

<sup>185</sup> *See id.* at 3-1. More specifically, in the risk impact assessment, plant-specific release analyses were performed to estimate the weighted average person-rem doses to the population within a 50-mile radius from Unit 2. The releases were based on a combination of the information obtained from the IP2 SAMA analysis, additional

- The use of the projected 2035 population to estimate population dose within a 50-mile radius of the plant for various release categories is consistent with the approach used in the license renewal SAMA analysis.<sup>186</sup>

It is entirely unclear how New York’s vague claims regarding the economic value of “iconic” properties, “distance truncation,” and the \$2,000 per person-rem value relate to, much less directly challenge, the assumptions and methodologies described in the risk impact assessment.

#### **6. Basis 6: Entergy’s Alleged Desire to Reduce Costs and Maximize Revenues to the Detriment of Plant Safety**

New York asserts that “Entergy’s desire to reduce costs and maximize revenues does not justify rolling back this important safety-related test.”<sup>187</sup> It bases this claim on Entergy’s statement in the LAR that “[t]he performance of fewer ILRTs would result in significant savings in radiation exposure to personnel, cost, and critical path time during future refueling outages.”<sup>188</sup> New York further states that reduced costs and outage times are not relevant to the NRC’s review of the LAR or “adequate protection” findings, and do not “justify exposing millions of State citizens and the State environment to exposure from radiation escaping from a damaged containment structure.”<sup>189</sup>

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population dose runs for the intact containment scenarios, and the Level 2 PRA containment failure release frequencies. *See id.* at 5-6.

<sup>186</sup> *See id.* at 3-1. In a related vein, New York criticizes Entergy’s reliance (in the risk impact assessment) on NUREG-1493, noting that the “representative” pressurized water reactor (“PWR”) considered in that study was the Surry reactor, located in rural Virginia. According to New York, it is “wholly inappropriate to use Surry as a benchmark plant and site for regulatory analysis in a license amendment for IP2, which is located in a densely populated urban and suburban environment and has been subjected to various unique degradation events.” Petition at 19. This argument is factually groundless, and fails to recognize the manner in which the IP2 ILRT risk impact assessment was performed. Specifically, that assessment makes use of plant-specific Level 1 and Level 2 PRA information (*e.g.*, initiating events, accident sequences, source terms and release frequencies) as well as Indian Point region-specific population data. The fact that NUREG-1493 used Surry as a representative PWR plant is wholly irrelevant to Entergy’s LAR and the detailed plant-specific technical justification set forth therein.

<sup>187</sup> Petition at 10.

<sup>188</sup> *Id.* (quoting LAR, attachment 1, at 3).

<sup>189</sup> *Id.* at 10-11.

New York’s assertions are both factually groundless and irrelevant. Nowhere in the LAR does Entergy cite reduced costs or outage times as justification for the requested 5-year extension of the ILRT interval. It simply notes that reduced radiation exposure to personnel, costs, and outage lengths are expected to result from an increased ILRT interval.

Notably, when Entergy sought an identical ILRT interval extension for IP3 last year, New York made similar statements in comments on the associated license amendment request. As documented in its March 13, 2015 safety evaluation, the NRC Staff rejected New York’s claim that Entergy’s references to reduced costs were “legally impermissible.”<sup>190</sup> The Staff explained that when the Commission issued the rules allowing licensees to request performance-based containment leak rate testing, it noted its expectation that licensees likely would save money by using the performance-based option.<sup>191</sup> Therefore, the Staff further noted, Entergy’s statement that it expected to save money “is congruent with the Commission’s expectations.”<sup>192</sup> The Staff then emphasized that although cost-saving may result from the Commission’s rules, cost is *not* a factor to be considered under 10 C.F.R. § 50.57(a), 10 C.F.R. § 50.54(o), or Appendix J to 10 C.F.R. Part 50, or in considering any related license amendment request.<sup>193</sup> The Staff noted that New York’s concerns “should be assuaged” in light of these facts.<sup>194</sup>

In summary, insofar as NYS-1 relies on Basis 6, it lacks adequate support, fails to raise a genuine dispute on a material issue of fact or law, and fails to directly challenge some material aspect of the application. Therefore, it is inadmissible under 10 C.F.R. § 2.309(f)(1)(iv)-(vi).

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<sup>190</sup> See Letter from Douglas V. Pickett, NRC, to Vice President, Operations, Entergy Nuclear Operations, Inc., Indian Point Energy Center, Indian Point Nuclear Generating Unit No. 3 – Issuance of Amendment Re: Extension of the Type A Containment Integrated Leakage Rate Test Frequency from 10 to 15 Years (TAC No. MF3426) (Mar. 30, 2015), encl. 2 (Safety Evaluation) at 15-16 (ML15028A308).

<sup>191</sup> See *id.* at 16.

<sup>192</sup> *Id.*

<sup>193</sup> *Id.*

<sup>194</sup> *Id.*

**C. Proposed Contention NYS-2 Is Inadmissible Because It Fails to Meet the Requirements of 10 C.F.R. § 2.309(f)(1)(iii)-(vi)**

In NYS-2, New York asserts that Entergy and the NRC Staff must perform an environmental review of the LAR under NEPA.<sup>195</sup> In short, New York argues that, contrary to Entergy’s and the Staff’s conclusions, “the LAR poses a significant hazard consideration under 10 C.F.R. § 50.92(c).”<sup>196</sup> It further asserts that because the LAR (purportedly) involves a significant hazards consideration, it does not qualify for the categorical exemptions from environmental review under 10 C.F.R. § 51.22(c)(9), and that under 10 C.F.R. § 51.101(a)(1), the Commission cannot act on the LAR until an environmental review is complete.<sup>197</sup>

NYS-2 must be rejected as inadmissible because it constitutes a *second* impermissible challenge to the NRC Staff’s proposed no significant hazards determination. Indeed, New York incorporates by reference the same arguments presented in support of Basis 4 of NYS-1. Accordingly, NYS-2 should be rejected for the same reasons discussed above (*see supra*, pages 31-33). In short, 10 C.F.R. § 50.58(b)(6) and related precedent bar adjudicatory challenges to the Staff’s no significant hazards consideration determination. Inasmuch as New York challenges that determination and contends that an environmental review of the LAR is required by NEPA, it also improperly challenges 10 C.F.R. § 50.58(b)(6) and 10 C.F.R. § 51.22(c)(9) (which categorically excludes amendments or exemptions involving no significant hazards consideration from an environmental review under NEPA and 10 C.F.R. Part 51). A contention that challenges an NRC rule is outside the scope of the proceeding because, absent a waiver, “no rule or regulation of the Commission . . . is subject to attack . . . in any adjudicatory proceeding.”<sup>198</sup> Finally, as discussed

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<sup>195</sup> Petition at 20.

<sup>196</sup> *Id.* at 21.

<sup>197</sup> *Id.* at 21-22.

<sup>198</sup> 10 C.F.R. § 2.335(a). A party can petition for a waiver of a specific NRC regulation, based on a showing of “special circumstances” such that application of the rule would not serve the purposes for which it was adopted.

above, New York's objections to the Staff's proposed no significant hazards consideration determination lack factual and technical support. Moreover, they are inconsistent with numerous other no significant hazard consideration determinations made by the Staff in its previous approvals of permanent and one-time extensions of plant ILRT intervals from 10 to 15 years.<sup>199</sup>

Accordingly, NYS-2 raises an issue that is outside the scope of this proceeding, contrary to 10 C.F.R. § 2.309(f)(1)(iii). The contention also fails to raise a material issue, lacks legal or factual support, and fails to demonstrate that a genuine dispute exists on a material issue of law or fact. As such, it also is inadmissible under 10 C.F.R. § 2.309(f)(1)(iv), (v), and (vi).

## V. CONCLUSION

As demonstrated above, New York has not proffered a contention that satisfies the contention admissibility requirements in 10 C.F.R. § 2.309(f)(1). Therefore, the Board should reject New York's Petition in its entirety.

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*Id.* § 2.335(b); *see also* *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 & 3), CLI-05-24, 62 NRC 551, 559–60 (2005) (laying out a four-factor test for determining whether to grant a waiver). However, as New York has not petitioned for a waiver of any NRC regulation, this process need not be discussed further.

<sup>199</sup> *See, e.g.*, NRC safety evaluations contained in the documents referenced in footnote 12 above.

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Respectfully submitted,

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*Counsel for Entergy Nuclear Operations, Inc.*

Dated in Washington, DC  
this 12th day of June 2015

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**BEFORE THE ATOMIC SAFETY AND LICENSING BOARD**

In the Matter of:	)	)	Docket No. 50-247-LA
	)	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	)	ASLBP No. 15-942-06-LA-BD01
	)	)	
(Indian Point Nuclear Generating Station, Unit 2)	)	)	June 12, 2015
	)	)	

**CERTIFICATE OF SERVICE**

Pursuant to 10 C.F.R. § 2.305, I certify that, on this date, copies of the foregoing “Entergy’s Answer Opposing New York’s Petition to Intervene and Request for Hearing” were served upon the Electronic Information Exchange (the NRC’s E-Filing System), in the above-captioned proceeding.

*Signed (electronically) by Martin J. O’Neill*

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In the Matter of Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Station, Unit 2)  
Docket No. 50-247-LA  
ASLBP No. 15-942-06-LA-BD01

**ATTACHMENT 1 TO ENTERGY'S JUNE 12, 2015 ANSWER OPPOSING STATE OF  
NEW YORK'S PETITION TO INTERVENE AND REQUEST FOR HEARING**

Excerpt from Letter from Lawrence Coyle, Entergy, to NRC Document Control Desk, NL-15-068,  
Response to Request for Additional Information Regarding License Amendment to Permanently  
Extend the Frequency of the Containment Integrated Leak Rate Test (TAC No. MF3369), Indian  
Point Unit Number 2, Docket No. 50-247, License No. DPR-26 (June 8, 2015)



**Entergy Nuclear Northeast**  
Indian Point Energy Center  
450 Broadway, GSB  
P.O. Box 249  
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Tel 914 254 6700

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Lawrence Coyle  
Site Vice President

NL-15-068

June 8, 2015

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

**SUBJECT:** Response to Request for Additional Information Regarding License  
Amendment to Permanently Extend the Frequency of the Containment  
Integrated Leak Rate Test (TAC NO. MF3369)  
Indian Point Unit Number 2  
Docket No. 50-247  
License No. DPR-26

**REFERENCES:** 1. NRC Letter to Entergy, Request for Additional Information Regarding the  
Proposed License Amendment to Permanently Extend the Containment  
Type A Leak Rate Test Frequency to 15 years (TAC NO. MF5382),  
dated April 28, 2015

2. Entergy Letter NL-14-128 to NRC Regarding Proposed License  
Amendment Regarding Extending the Containment Type A Leak Rate  
Testing Frequency to 15 years, dated December 9, 2014  
(ML14353A015)

Dear Sir or Madam:

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

No new Regulatory Commitment is made in this submittal.

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

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

I declare under penalty of perjury that the foregoing is true and correct. Executed on June 8, 2015.

Sincerely,



LC/sp

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

Enclosure: Documents Provided in Support of The Response to Request for Additional Information Regarding the Extension of the Containment Type A Leak Rate Testing Frequency to 15 years

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

ATTACHMENT TO NL-15-068

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

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

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

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

**SCVB RAI-1**

License Amendment Request (LAR) Section 4.3.1 "Integrated Leak Rate Test (ILRT) Test Results" (pages 5&6 of 19, Attachment 1, Reference 1) details all test pressures in the absolute pressure scale of "psia" [pounds per square inch absolute]. Without providing the corresponding atmospheric pressure for each test pressure, the U.S. Nuclear Regulatory Commission (NRC) staff cannot confirm that the "calculated peak containment internal pressure for the Design-Basis-Loss-Of-Coolant accident,  $P_a$ , ..." of 47 psig [pounds per square inch gauge] was satisfied during ILRT test performance (Reference Indian Point Nuclear Generating Unit No. 2 (IP2) Technical Specification (TS) 5.5.14.b), consistent with the direction of Nuclear Energy Institute (NEI), Revision 2-A (Reference 2) and the test methodology of American National Standards Institute/American Nuclear Society (ANSI/ANS) 56.8-2002 (Reference 3).

For example an excerpt from Section 4.3.1 reads:

"The last two tests were:

1. The last 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."

Since  $P_a$  equals 47 psig, a test pressure of 60.5 psia prompts concern that the test pressure was not greater than  $P_a$ .

The staff requests that the licensee provide the corresponding recorded atmospheric pressures from each of the five ILRT test results recorded in Section 4.3.1

Response

The minimum allowable containment pressure during a Type A test is established in paragraph 3.2.12 of ANSI/ANS-56.8-2002 "Containment System Leakage Testing Requirements," which states that "The Type A test pressure shall not be less than 0.96 Pa for the duration of the Type A test". For the IP2 containment the  $P_a$  is 47 psig resulting in a minimum allowed containment pressure during the Type A test of 45.12 psig.

The IP2 Integrated Leak Rate Test procedure 2-PT-10Y001 used for the 2006 ILRT states that the lowest pressure reading during the ILRT was 60.5 psig when the outside atmospheric pressure was 14.848 psig yielding a minimum test pressure of 45.652 psig. Since the minimum test pressure of 45.652 psig was greater than the minimum required pressure of 45.12 psig, the requirements of ANSI/ANS-56.8-2002 were satisfied.

The five tests identified in NL-14-128, Section 4.3.1 are the ILRTs performed in August 1979, September 1984, December 1987, June 1991 and April 2006. The lowest recorded test pressures and the highest atmospheric pressures are recorded below. No recorded atmospheric pressures are available from the August 1979 test.

Year	Lowest Containment Pressure (psia)	Highest Atmospheric Pressure (psia)	Pressure Differential
1979	No data		
1984	65.285	14.904	50.381
1987	62.913	14.7*	48.213
1991	61.562	14.7*	46.862

\*The atmospheric pressure was not measured but assumed to be 14.7 psia.

**SCVB RAI-2**

The last sentence of page 6 of 19, Attachment 1 (Reference 1) from LAR Section 4.3.2 “Type B and C testing” reads “Notes are provided for test failures.” However, no notes in Table 4.3-2 or subsequent pages of the LAR were provided that detail: (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.

The staff requests that the licensee provide this missing information.

**Response**

The LLRT failures, corrective actions and historical test failures as repetitive from the total population of Type B penetrations and Type C isolation valves follow:

During the 2R21 refueling outage in 2014 the leak rate through PRT Nitrogen Supply Line Check Valve 518 (3/4”) was 1387.5 cc/min which exceeded the acceptance criterion of 300 cc/min. 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 10CFR50, Appendix J limit. This failure was documented in the IPEC Corrective Action program. Since an evaluation demonstrated that this leak rate did not adversely impact the ability of the containment to perform its design function (i.e. meet the leak rate limits of 10CFR50, Appendix J), this valve was accepted and a repair has been scheduled for the 2016 2R22 refueling outage. This was not a repetitive failure since this valve had not previously exceeded its leak rate limit.

Also during the 2R21 refueling outage, the leak rate through RCDT Nitrogen Supply Line CIV 1616 (1”) was 21,000 cc/min, which exceeded the acceptance criteria of 400 cc/min. This failure to meet the acceptance criteria was accepted because the overall leakage remained within the 10CFR50, Appendix J limit even though a repair was ineffective. This was documented in the IPEC Corrective Action program. An evaluation of this valve indicated that this was a repetitive failure. During 2R20, the prior outage in 2012, valve 1616 failed the leak rate test with a leakage rate of 6,000 cc/min. This failure to meet the acceptance criterion was accepted since the overall containment leakage was below the allowable limit and a repair was scheduled for 2R21 in 2014.

The repair in 2R21 changed the valve design from a hard seat to a soft seat valve, however, the post work test indicated that the leak rate remained elevated. 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 10CFR50, 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.

### **SCVB RAI-3**

The staff notes that the use of NEI TR 94-01, Rev 2-A (Reference 2) is acceptable for referencing by licensees proposing to amend their Technical Specifications (TSs) to permanently extend the ILRT surveillance interval to 15 years, provided six specific conditions are satisfied.

Condition 1 from Section 4.1 of NEI TR 94-01, Revision 2-A reads:

For calculating the Type A leakage rate, the licensee should use the definition in the NEI TR 94-01, Rev 2-A, in lieu of that in ANSI/ANS-56.8-2002. (Refer to SE Section 3.1.1.1).

Section 5.0 of the SE for NEI 94-01, Revision 2-A reads:

The performance leakage rate is calculated as the sum of the Type A upper confidence limit (UCL) and as-left minimum pathway leakage rate (MNPLR) leakage rate for all Type B and Type C pathways that were in service, isolated, or not lined up in their test position (i.e., drained and vented to containment atmosphere) prior to performing the Type A test. In addition, leakage pathways that were isolated during performance of the test because of excessive leakage must be factored into the performance determination. The performance criterion for Type A tests is a performance leak rate of less than  $1.0L_a$ .

Section 3.2.9 "Type A test performance criterion" of ANSI/ANS-56.8-2002 (Reference 3) defines the "performance leakage rate" and reads in part:

"The performance criterion for a Type A test is met if the performance leakage rate is less than  $L_a$ . The performance leakage rate is equal to the sum of the measured Type A test UCL and the total as-left MNPLR of all Type B or Type C pathways isolated during performance of the Type A test.

Attachment 1, Page 4 of 19 of Entergy's LAR (Reference 1) for IP2 Compliance with Condition 1 reads:

Implementation of NEI 94-01 Rev 2-A will require use of the definition of "performance leakage rate" defined in Section 5.0 for calculating the Type A leakage rate when performing Type A tests.

The NRC staff notes that the "As found Leakage" is on a continuous trend towards eclipsing the

IP2 TS 5.5.14.d.1 leakage rate acceptance criteria of less than or equal to ( $\leq$ ) 0.75La (i.e. 0.075 percent containment weight per day) as reflected in SCVB RAI-4 (below). The staff needs to develop a better understanding of why this phenomenon is occurring to make its regulatory decision. The staff notes that IP2's statement of compliance indicates future tense (i.e. "will require"). To make its regulatory decision, the staff needs to understand whether IP2's Type A ILRT plant test procedures currently reflect NEI 94-01, Revision 2-A's definition of "performance leakage rate". If the IRLT test procedures currently reflect the requisite definition, the staff requests historical information as to when the requisite NEI 94-01, Revision 2-A definition was adopted into IRLT test procedures. In addition the staff requests that Entergy Nuclear Operations, Inc. (Entergy) provide a copy of the current IP2 IRLT test procedures, plant drawings, etc. (or procedural excerpts from these documents) to aid the staff in understanding why this phenomenon is occurring.

**Response**

The IP2 ILRT is performed under procedure 2-PT-10Y001, "Integrated Leak rate Test". The current revision of this procedure is revision 2, dated 8/22/06. Since an ILRT has not been performed since 2006, this procedure has not been updated since 2006.

Revision 2-A of NEI Topical Report 94-01 was approved by the NRC based on a Safety Evaluation Report dated June 26, 2008 and then issued for use by NEI in a letter dated November 19, 2008. Since this topical report was issued after the IP2 ILRT procedure was last revised, the current version of 2-PT-10Y001 does not include the requirements of NEI 94-01, Revision 2-A. Therefore, Entergy will revise 2-PT-10Y001 prior to the next ILRT and will include the NEI 94-01, Revision 2-A requirements as provided in the NRC safety evaluation dated June 25, 2008. A copy of the current version of 2-PT-10Y001 is attached to this RAI response for information.

The definition of performance leakage rate in NEI Topical Report 94-01, Revision 2A, is more detailed than that of ANSI/ANS-56.8-2002 as shown by the quoted portions of those documents in the above question. Performance leakage as defined in 2-PT-10Y001 is "Sum of above report Lam & UCL "AS LEFT" and as-left minimum pathway leakage rate of any pathway isolated during ILRT due to excessive Leakage." The "UCL" is the upper confidence leakage rate and "Lam" is the measured leakage rate. Therefore, there are few practical effects that result from revising the definition of performance leakage rate since the definitions are substantially similar.

The response to RAI-4 below discusses the projected ILRT leakage rate at the end of the 15 year interval based on the previous ILRT results.

**SCVB RAI-4**

LAR Section 4.3.1 "ILRT Test Results" (pages 5 & 6 of 19, Attachment 1, Reference 1) summarizes the IP2 Type A ILRT test results since August, 1979. These test results are summarized in the following Table:

Date	As found Leakage (% Containment 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

The staff notes 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 leakage rate acceptance criteria of  $\leq 0.75L_a$  (i.e. 0.075% Containment weight per day).

Given the above ILRT results trend, the NRC staff requests that:

- (1) The licensee explain why this phenomenon is occurring at IP2. More importantly, what is IP2’s long term corrective action plan to arrest or reverse this trend?

Response

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. Past ILRT tests performed across the industry have shown that the “as found leakages” measured during ILRTs can vary from performance to performance (as demonstrated, for example, by the Indian Point 3 historical test results). An ILRT is performed to test the containment boundary as well as leakage from Type B penetrations and Type C penetrations. The “as found” ILRT is the leakage from the Containment and the Type B and C penetrations tested as part of the ILRT as well as the leakage through the Type B and C penetrations not tested as part of the ILRT. The Type B and C tests results can vary from ILRT to ILRT depending on the systems that are vented, drained, and open to atmosphere for the ILRT. The leakage from the Type B and C components cannot be used for trending of results since the ILRT does not pinpoint the source of leakage. In addition, visual inspections of the internal and the external containment surfaces will continue to be performed as required by the ASME Section XI Code. These visual inspections are capable of identifying potential degradation if any were to occur prior to the next ILRT.

All of the IP2 ILRT “as found” test results have met the 10 CFR 50 Appendix J criterion of 1.0La. 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 0.75La, a lower value that assures 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, the resulting value still would not exceed the “as found” acceptance criteria of 1.0La. Furthermore, the IP2 Containment Leakage Rate Testing Program would also require the “as left” criterion 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 10CFR50, 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.

- (2) Entergy should include in its response a discussion of any IP2 containment modifications (major or minor) that may have affected containment integrity since August, 1979.

Response

There have been no modifications to the IP2 containment since 1979 that are considered major (i.e., of the type that would require separate testing per Appendix J, Section IV). Some minor modifications have been made to the containment structure since 1979, such as isolating portions of the weld channel system, replacement of liner insulation panels to support liner inspections, and repairing delamination on the outside wall of the containment inside the electrical penetration tunnel. None of these minor modifications or maintenance activities would adversely affect the leak integrity of containment.

- (3) For each ILRT, the licensee provide the individual cumulative MNPLR leakage rate for all Type B and Type C pathway test values that constitute a part of the total performance leakage rate (i.e. "As found Leakage") values identified in the table above.

Response

The following is the MNPLR leakage rate information available for each of the ILRT tests (additional details on As Found leakage are attached):

a) 2006 ILRT

WCPS* Zone 1	– 18,689.02 cc/min
WCPS Zone 2	– 19,255.36 cc/min
Containment Spray Header	– 69 cc/min
Containment Spray Header	– 139 cc/min
Purge Supply	– 2,574.23 cc/min
Purge Exhaust	– 5,502.82 cc/min
Pressure Relief	– 364.5 cc/min

Total MNPLR added = 46,593.93 cc/min

\* WCPS – Weld Channel Pressurization System

b) 1991 ILRT

Total MNPLR added = 0 cc/min

c) 1987 ILRT

Penetration U-U and V-V – 42.28 cc/min  
Other penetrations Isolated during ILRT – 851.81 cc/min

Total MNPLR added = 894.09 cc/min

d) 1984 ILRT

80' Airlock – 16,194.66 cc/min  
22 Fan Cooler Unit – 60.76 cc/min  
Air Ejector Discharge – 25.86 cc/min  
Penetration U-U – 59.32 cc/min  
Penetration V-V – 49.88 cc/min

Total MNPLR added = 16,390.48 cc/min

- (4) Additional information about how IP2 plant programs satisfy the guidance of Regulatory Position 3 “Element 3: Define Implementation and Monitoring Program” of RG 1.174, Revision 2 (Reference 4)

Response: Position 3, Element 3 of RG 1.174 states, in part that “The licensee should propose monitoring program(s) that include a means to adequately track the performance of equipment that, when degraded, can affect the conclusions of the licensee’s engineering evaluation and integrated decision making that support the change to the LB. The program should be capable of trending equipment performance after a change has been implemented to demonstrate that performance is consistent with the assumptions in the traditional engineering and probabilistic analyses conducted to justify the change”.

The overall containment leakage includes leakage through containment penetrations and through containment isolation valves (CIVs) (i.e. Type B and C testing). The Type B and C leak rate testing is a quality program implemented per the requirements of IP2 Technical Specification section 5.5.14. This program ensures that Type B and C leak rates are measured on a periodic basis and the results are trended to ensure that degradation is identified and corrected prior to exceeding the corresponding regulatory limits. This program ensures that the requirements of position 3, element 3 of RG 1.174 are satisfied for the containment leak rate test.

## **REFERENCES:**

1. Letter NL-14-128, dated December 9, 2014, from Lawrence Coyle, Entergy Nuclear

Operations to U.S. Nuclear Regulatory Commission regarding the Proposed License Amendment Regarding Extending the Containment Type A Leak Rate Testing Frequency to 15 Years, (ADAMS Accession No. ML14353A015)

2. NEI 94-01, Revision 2-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," October 2008 (ADAMS Accession No. ML100620847)
3. ANSI/ANS-56.8-2002, Reaffirmed August 9, 2011, "Containment System Leakage Testing Requirements"
4. Regulatory Guide (RG) 1.174, Revision 2, dated May, 2011, "An Approach For Using Probabilistic Risk Assessment on Plant-Specific Changes To The Licensing Basis" (ADAMS Accession No. ML 100910006).