

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of	)	Docket Nos.
	)	50-247-LR
Entergy Nuclear Operations, Inc.	)	and 50-286-LR
(Indian Point Nuclear Generating	)	
Units 2 and 3)	)	February 17, 2012
	)	

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**RIVERKEEPER, INC. AND HUDSON RIVER SLOOP CLEARWATER, INC.  
OPPOSITION TO ENTERGY'S MOTION IN LIMINE TO EXCLUDE PORTIONS OF  
PRE-FILED TESTIMONY AND EXHIBITS FOR CONTENTION RK-EC-3/CW-EC-1**

## **I. INTRODUCTION**

Pursuant to the Atomic Safety and Licensing Board's (ASLB) February 1, 2012 Order in the above-referenced proceeding,<sup>1</sup> Riverkeeper, Inc. ("Riverkeeper") and Hudson River Sloop Clearwater, Inc., ("Clearwater") (collectively "Intervenors") hereby submit this combined response in opposition to Entergy's Motion in Limine to Exclude Portions of Pre-Filed Testimony and Exhibits for Contention RK-EC-3/CW-EC-1 (Spent Fuel Pool Leaks) dated January 30, 2012 ("Entergy's Motion in Limine"), and Nuclear Regulatory Commission (NRC) Staff's Response in Support of Entergy's Motion in Limine to Exclude Portions of Pre-Filed Testimony and Exhibits for Contention RK-EC-3/CW-EC-1 (Spent Fuel Pool Leaks), dated February 9, 2012 (hereinafter "NRC Staff's Response"). The ASLB should deny Entergy's request to exclude certain evidence submitted by Intervenors in support of Consolidated Contention RK-EC-3/CW-EC-1, in its entirety. As the following demonstrates, all of the proffered testimony and exhibits that are the subject of Entergy's Motion in Limine are reliable and relevant, fall properly within the scope of the contention as well as this proceeding, and in no way constitute impermissible challenges to NRC regulations.

## **II. APPLICABLE LEGAL STANDARDS**

NRC regulations provide that evidence is admissible at an adjudicatory hearing if it is relevant, material, reliable and not unduly repetitious.<sup>2</sup> While Boards may look to the Federal Rules of Evidence for guidance, evidentiary hearings under 10 C.F.R. Part 2 are not bound by the formal rules of evidence.<sup>3</sup> As such, Boards have "considerable discretion in making evidentiary

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<sup>1</sup> In the Matter of Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3), Docket Nos. 50-0247-LR and 50-286-LR, ASLBP No. 07-858-03-LR-BD01, Order (Setting Dates for Responsive Pleadings to Entergy's Motions in Limine), February 1, 2012.

<sup>2</sup> 10 C.F.R. §2.337(a).

<sup>3</sup> See 10 C.F.R. § 2.319(d) (The "strict rules of evidence do not apply to written submissions" in proceedings under 10 C.F.R. Part 2); Changes to Adjudicatory Process, Final Rule, 69 Fed. Reg. 2182, 2187 (Jan. 14, 2004) ("Although the Commission has not required the application of the Federal Rules of Evidence in NRC adjudicatory proceedings,

rulings,” and may proceed with great flexibility in relation to evidentiary issues.<sup>4</sup> In particular, a licensing Board has broad leeway in “deciding whether a witness is qualified to serve as an expert.”<sup>5</sup>

For “expert testimony to be admissible, it need only (1) assist the trier of fact, and (2) be rendered by a properly qualified witness.”<sup>6</sup> While “[a] witness may qualify as an expert by ‘knowledge, skill, experience, training, or education’ to testify ‘if scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue,’” this standard, “of course, is not rigid or self-defining. Rather, it gives room to our boards to decide whether the expert will be of assistance.”<sup>7</sup> “[A]gency caselaw indicates that the qualifications of an expert are established by showing either academic training or relevant experience, or some combination of the two.”<sup>8</sup>

In the context of a proceeding before Administrative Law Judges, where the judge is the ultimate fact-finder as opposed to a jury, concerns relating to the reliability of an expert’s testimony are greatly diminished.<sup>9</sup> Furthermore, concerns about an expert’s ability to opine

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presiding officers and Licensing Boards have always looked to the Federal Rules for guidance in appropriate circumstances. The Commission continues to believe that greater informality and flexibility in the presentation of evidence in hearings, rather than the inflexible use of the formal rules of evidence imposed in the Federal courts, can result in more effective and efficient issue resolution.”).

<sup>4</sup> *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 NRC 21, 27 (2004); *see also* Changes to Adjudicatory Process, Final Rule, 69 Fed. Reg. 2182, 2187 (Jan. 14, 2004).

<sup>5</sup> *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 NRC 21, 27 (2004).

<sup>6</sup> *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 N.R.C. 1076 (1983).

<sup>7</sup> *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 NRC 21, 27-28 (2004) (quoting *Duke Power Co.* (McGuire Nuclear Station, Units 2 and 3), ALAB-669, 15 N.R.C. 453, 475 (March 30, 1982) and Fed. R. Evid. 702).

<sup>8</sup> *See Pacific Gas and Electric* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), LBP-78-36, 8 NRC 567, 570 (1978).

<sup>9</sup> *See, e.g., In The Matter of Certain Starter Motors and Alternators, Inv. No. 337-TA-755*, International Trade Commission, 2011 ITC LEXIS 2038, \*9 (Oct. 11, 2011); *United States v. Ozuna*, 561 F.3d 728, 737 (7th Cir. 2009) (“Judges, on the other hand, are less likely to be swayed by experts with insufficient qualifications. . . . For this reason, we have held that a court conducting a bench trial could make reliability determinations as the evidence was presented throughout the trial, rather than during a formal pre-trial *Daubert* hearing.”); *see also In re Salem*, 465 F.3d 767, 777 (7th Cir. 2006) (“It is not that evidence may be less reliable during a bench trial; it is that the court’s gatekeeping role is necessarily different. Where the gatekeeper and the factfinder are one and the same—that is, the judge—the need to make such decisions prior to hearing the testimony is lessened. . . . That is not to say that the scientific reliability requirement is lessened in such situations; the point is only that the court can hear the evidence

upon a given subject matter go to the weight to be afforded to the expert's testimony, and *not* to the admissibility of such evidence.<sup>10</sup> In other words, the reliability of evidence is generally tested at the hearing and dealt with by according the testimony appropriate weight. Indeed, "Licensing Boards are accustomed to weighing evidence, including expert testimony, and determining its relevance to the issues presented."<sup>11</sup>

The Commission has specifically found that an expert's "broad, general experience may be useful" and aid a Board in deciding upon the relevant issues, and that any "[g]aps in specific knowledge may go to the 'weight' of the expert testimony rather than to its admissibility."<sup>12</sup>

Thus, the Commission held that a licensing board did not abuse its discretion in admitting an expert's testimony related to nuclear power plant security issues, notwithstanding the fact that "in the area of reactor security plants" the expert's "expertise is general rather than specific."<sup>13</sup>

In another NRC proceeding, a licensing board allowed an expert to testify about criticality

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and make its reliability determination during, rather than in advance of, trial. Thus, where the factfinder and the gatekeeper are the same, the court does not err in admitting the evidence subject to the ability later to exclude it or disregard it if it turns out not to meet the standard of reliability established by Rule 702."); *United States v. Brown*, 415 F.3d 1257, 1268-69 (11th Cir. 2005) (explaining the "liberal thrust of the Federal Rules and their general approach of relaxing the traditional barriers to opinion testimony" and how "[t]hose barriers are even more relaxed in a bench trial situation, where the judge is serving as factfinder and we are not concerned about 'dumping a barrage of questionable scientific evidence on a jury.' . . . There is less need for the gatekeeper to keep the gate when the gatekeeper is keeping the gate only for himself.").

<sup>10</sup> *See, e.g., First Tenn. Bank Nat'l Ass'n v. Barreto*, 268 F.3d 319, 333 (6th Cir. Tenn. 2001) (court finding that "to the extent [the expert] . . . lacked familiarity with some aspects of banking relationships [in a case involving a bank's lawsuit to over a defaulted loan], the district court correctly reasoned that such unfamiliarity merely affected the weight and credibility of his testimony, not its admissibility."); *Amergen Energy Comp, LLC* (Oyster Creek Nuclear Generating Station, Docket No. 50-0219-LR, ASLBP No. 06-844-01-LR, 2007 NRC LEXIS 120, \*1 (Sept. 12, 2007) (explaining how licensing board chose to "refrain from actually expunging [any] irrelevant material from the record [r]ather, to the extent we conclude that material is irrelevant or otherwise inadmissible, we will accord it no weight).

<sup>11</sup> In the Matter of Amergen Energy Comp., LLC, (License Renewal for Oyster Creek Nuclear Generating Station), Docket No. 50-0219-LR, ASLBP No. 06-844-01-LR, Memorandum and Order (Ruling on Motions in Limine and Motion for Clarification), August 9, 2007, at 2, ADAMS Accession No. ML072210832; In the Matter of Nuclear Innovation North America, LLC, (South Texas Project Units 3 and 4), Docket Nos. 52-12-COL and 52-13-COL, ASLBP No. 09-885-08-COL-BD01, Order (Ruling on Motions in Limine), July 14, 2011, at 3, ADAMS Accession No. ML11195A093.

<sup>12</sup> *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 NRC 21, 29 (2004); *see also Huval v. Offshore Pipelines, Inc.*, 86 F.3d 454, 457-58 (5th Cir. 1996) (in a case involving a party's failure to procure insurance coverage, appellate court finding no abuse of discretion in lower court qualifying an expert witness who had broad, general experience in the insurance industry).

<sup>13</sup> *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 NRC 21, 29 (2004).

prevention in relation to severe accidents, despite arguments from NRC staff that the expert's testimony should be disregarded because the expert was not qualified to render an opinion on spent fuel criticality.<sup>14</sup> The licensing board in that case found that while the expert at issue

may have little experience in the actual operation of a nuclear power plant or in PRA [probabilistic risk assessment] preparation . . . given his education and experience relating to nuclear facility and SFP [spent fuel pool] design . . . we cannot say that his testimony will not aid the Board in determining and/or understanding the probability of the seven step accident sequence.<sup>15</sup>

The Board simply gave the expert's "testimony due weight in the subject areas in which we believe he possesses knowledge and experience that can aid the Board in its determinations regarding" the contention at issue.<sup>16</sup>

### **III. ARGUMENT**

#### **A. Scope of Consolidated Contention RK-EC-3/CW-EC-1**

Entergy's Motion in Limine misconstrues and mischaracterizes the scope of Consolidated Contention RK-EC-3/CW-EC-1 (hereinafter "the Consolidated Contention").<sup>17</sup> Entergy's flawed interpretation of the Consolidated Contention would improperly limit the inquiry that is necessary in order to fully resolve the issues raised by the contention. The ASLB ruled that the Consolidated Contention raised "a genuine issue regarding the significance of new information" relating to spent fuel pool leaks.<sup>18</sup> The contention was specifically admitted in relation to "whether Entergy's *conclusions* contained in the ER regarding *the significance* of the

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<sup>14</sup> *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant, ASLBP No. 99-762-02-LA; LBP-01-09, 53 NRC 239 (2001).

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

<sup>16</sup> *Id.*; *see also id.* (the Board gave the expert's testimony "appropriate weight commensurate with his expertise and qualifications' regarding issues of criticality prevention").

<sup>17</sup> *See* Entergy's Motion in Limine at 5-7.

<sup>18</sup> In the Matter of Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3), Docket Nos. 50-247-LR and 50-286-LR, ASLBP No. 07-858-03-LR-BD01, Memorandum and Order (Ruling on Petitions to Intervene and Requests for Hearing) (July 31, 2008), ADAMS Accession No. ML082130436, at 188, (hereinafter "ASLB July 31, 2008 Contention Admissibility Order"); *see id.* at 192 ("The Petitioner has . . . raised a genuine dispute regarding the significance of the environmental impacts from spent fuel pool leaks.").

groundwater contamination are sufficient for purposes of satisfying NEPA [the National Environmental Policy Act] and NRC regulations.”<sup>19</sup> While Entergy explicitly acknowledges that the issue raised by the Consolidated Contention “is whether the FSEIS and ER sufficiently analyze the environmental *significance* of Indian Point SFP leaks,”<sup>20</sup> Entergy appears to misunderstand the implications of this inquiry.

In particular, as discussed in Riverkeeper’s originally submitted contention<sup>21</sup> as well as in Intervenors’ Initial Statement of Position concerning the Consolidated Contention,<sup>22</sup> evaluating the “significance” of the spent fuel pool leaks at Indian Point requires consideration of the context in which the proposed action is situated and the intensity of the impacts.<sup>23</sup> According to the Federal Council on Environmental Quality (“CEQ”) regulations implementing NEPA, this involves an assessment of the leaks in light of local circumstances, short- and long-term effects, affects to public health and safety, unique characteristics of the area, the degree of controversy associated with the leaks, cumulative impacts, impacts to endangered or threatened species, and potential violations of Federal, State, or local laws or requirements posed by the impacts.<sup>24</sup> An assessment of the significance of an environmental impact also requires a discussion “of steps that can be taken to mitigate adverse environmental consequences.”<sup>25</sup> Indeed, “[w]ithout such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.”<sup>26</sup>

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<sup>19</sup> ASLB July 31, 2008 Contention Admissibility Order at 188 (emphasis added); *see id.* at 192.

<sup>20</sup> *See* Entergy’s Motion in Limine at 7 (emphasis added).

<sup>21</sup> Riverkeeper, Inc.’s Request for Hearing and Petition to Intervene in the License Renewal Proceedings for the Indian Point Nuclear Power Plant (November 30, 2007), ADAMS Accession No. ML073410093, at 77-79 (hereinafter “Riverkeeper Petition to Intervene”).

<sup>22</sup> *see generally* Riverkeeper and Hudson River Sloop Clearwater Initial Statement of Position Regarding Consolidated Contention RK-EC-3/CW-EC-1 (Spent Fuel Pool Leaks), at 8-13.

<sup>23</sup> 40 C.F.R. § 1508.27.

<sup>24</sup> 40 C.F.R. § 1508.27(a), (b).

<sup>25</sup> *Robertson*, 490 U.S. at 351-52 (citations omitted).

<sup>26</sup> *Id.*

Thus, whether the environmental assessment of the impacts of spent fuel pool leaks satisfies NEPA hinges upon whether Entergy and NRC Staff have fully evaluated all such factors. Entergy points out that the ASLB admitted the Consolidated Contention, “as it pertains to the environmental impacts from the spent fuel pool leaks.”<sup>27</sup> Intervenors do not dispute this. Indeed, at its heart, the Consolidated Contention has always questioned whether Entergy and the NRC Staff have taken the searching and rigorous “hard look” at the impacts of the spent fuel pool leaks that is required by NEPA.<sup>28</sup> This “hard look” necessarily involves the detailed review prescribed by applicable regulations, as discussed above, as well as at length in Intervenors’ pleadings to date concerning the Consolidated Contention.<sup>29</sup>

**B. Mr. Gundersen is a Properly Qualified Witness Whose Testimony Will Assist the ASLB in Understanding Relevant Facts**

Entergy’s Motion in Limine, supported by NRC Staff, claims that Intervenors have not demonstrated that Mr. Gundersen “is an expert in all areas on which he opines.”<sup>30</sup> First, Entergy asserts that Mr. Gundersen seeks to testify about Indian Point hydrogeologic issues, including the likelihood of contamination plume co-mingling and long-term contamination plume trends, without requisite expertise.<sup>31</sup> However, as explained in the Declaration appended hereto in support of Intervenors’ Opposition to Entergy’s Motion in Limine, Mr. Gundersen’s extensive professional experience as a nuclear engineer qualifies him to provide an opinion related to the

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<sup>27</sup> Entergy’s Motion in Limine at 6. NRC Staff similarly characterizes the Consolidated Contention as challenging “the adequacy of the Applicant’s and Staff’s evaluations of the environmental effects of Indian Point Units 1 and 2 SFP leaks on groundwater and the Hudson River.” NRC Staff’s Response at 4.

<sup>28</sup> *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350-51 (1989); see also *Midcoast Interstate Transmission, Inc. v. F.E.R.C.*, 198 F.3d 960, 968 (D.C. Cir. 2000); *Stewart Park & Reserve Coal., Inc. (SPARC) v. Slater*, 352 F.3d 545, 557 (2d Cir. 2003).

<sup>29</sup> See Riverkeeper Petition to Intervene at 77-79; Riverkeeper and Hudson River Sloop Clearwater Initial Statement of Position Regarding Consolidated Contention RK-EC-3/CW-EC-1 (Spent Fuel Pool Leaks), at 8-13.

<sup>30</sup> See Entergy’s Motion in Limine at 8; NRC Staff Response at 7.

<sup>31</sup> See Entergy’s Motion in Limine at 9.

movement and persistence of radiological contamination at Indian Point.<sup>32</sup> In particular, Mr. Gundersen has a “long history of successfully identifying and analyzing radiological leak problems” at nuclear power plants.<sup>33</sup> His experience has afforded him with the ability to analyze the behavior of radiological contamination, including the ability to accurately predict the presence of radionuclides in groundwater, as well as the flow patterns of radionuclides in groundwater.<sup>34</sup> Notably, much of the testimony Entergy claims Mr. Gundersen is not qualified to testify on because he is not a hydrogeologist, does not relate to hydrogeology *at all*,<sup>35</sup> and, instead, clearly stems from Mr. Gundersen’s well-founded and vast knowledge of basic nuclear principles, and professional experience relating to radiological leaks and contamination at nuclear power plants.

Furthermore, Entergy makes much of a case in which Mr. Gundersen’s expert report was excluded from the evidentiary record.<sup>36</sup> However, Entergy has mischaracterized the circumstances under which Mr. Gundersen’s expert report was excluded. His report was excluded, not because Mr. Gundersen lacked relevant qualifications, but rather, because Mr. Gundersen’s report was ultimately found to be unreliable since he “base[d] his expert conclusions on hypotheticals” and assumptions for which there was no evidence to support.<sup>37</sup> Mr. Gundersen was forced to rely upon unsupported assumptions due to insufficient discovery

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<sup>32</sup> See Declaration of Arnold Gundersen (February 15, 2012) at ¶ 5; see *Duke Energy Corp. (Catawba Nuclear Station, Units 1 and 2)*, CLI-04-21, 60 NRC 21, 27-28 (2004) (“[a] witness may qualify as an expert by ‘knowledge, skill, *experience*, training, or education’ to testify”) (emphasis added).

<sup>33</sup> See Declaration of Arnold Gundersen (February 15, 2012) at ¶ 5.

<sup>34</sup> See Declaration of Arnold Gundersen (February 15, 2012) at ¶ 5, 6.

<sup>35</sup> For example, Entergy cites to the following Mr. Gundersen’s statements about the varied range of radionuclides present in the groundwater” and “the dangerous toxicity of various radionuclides in the plumes (including Strontium-90 and Cesium-137),” See Exhibit RIV000060 (Gundersen Testimony) at 19:14-20; Entergy’s Motion in Limine at footnote 32. These opinions are not dependent upon principles of hydrogeology, and Mr. Gundersen clearly applied his knowledge and experience relating to basic principles of nuclear engineering to arrive at his conclusions here.

<sup>36</sup> Entergy’s Motion in Limine at 9 (citing *Finestone v. Fla Power & Light Co.*, 2006 WL 267330, 12 (S.D. Fla. Jan. 6, 2006), *aff’d* 272 Fed. Appx. 761, 2008 WL 863894 (11th Cir. 2008).

<sup>37</sup> See *Finestone v. Fla. Power & Light Co.*, 272 Fed. Appx. 761, 768 (11th Cir. 2008).

from the defendant nuclear power plant, which resulted in an adverse inference finding.<sup>38</sup> In stark contrast, as clearly evidenced by Mr. Gundersen's amply cited testimony and the multitude of exhibits submitted in support of such testimony, Mr. Gundersen arrived at conclusions about the behavior of the radiological contamination at Indian Point by applying his knowledge and expertise to a review of numerous documents generated by Entergy and/or Entergy's consultants and vendors.<sup>39</sup>

In sum, Mr. Gundersen's has the requisite expertise and qualifications to provide the testimony cited by Entergy related to the movement and persistence of the radiological contamination at Indian Point.<sup>40</sup> Mr. Gundersen's testimony will undoubtedly assist the ASLB in understanding relevant evidence.<sup>41</sup> In any event, any concerns about the ability of Mr. Gundersen to opine upon the matters cited by Entergy's Motion in Limine about the movement and persistence of radiological contamination at Indian Point go to the weight of such testimony, and the ASLB should not strike it.<sup>42</sup>

Next, Entergy asserts that Mr. Gundersen is not qualified to provide opinions about whether the radiological leaks from Indian Point can affect the Hudson River.<sup>43</sup> However, a review of the actual testimony cited reveals that Mr. Gundersen has offered opinions that are based squarely within his areas of expertise.<sup>44</sup> For example, Mr. Gundersen discusses the toxic and persistent nature of Strontium-90 as an isotope, as well as background levels of radiation

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<sup>38</sup> *See id.* ("The court . . . granted Appellants 'the lesser sanction of an adverse inference in the form of a jury instruction that Defendant did not timely produce the Bailey Report.'").

<sup>39</sup> For example, Entergy seeks to exclude Mr. Gundersen's testimony related to the impact of new component leaks on the existing contamination plumes, and Mr. Gundersen's testimony related to whether or not the plumes of contamination are decreasing, despite the fact that this testimony stems directly from Mr. Gundersen's application of his expertise to a review of statements made by Entergy consultants at GZA GeoEnvironmental, Inc. *See* Entergy's Motion in Limine at footnote 32 (citing Exhibit RIV000060 (Gundersen Testimony) at 15:26 to 16:1, 20:21 to 21:5).

<sup>40</sup> *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 NRC 21, 27-28 (2004).

<sup>41</sup> *Id.*

<sup>42</sup> *See id.* at 29; *See, e.g., First Tenn. Bank Nat'l Ass'n v. Barreto*, 268 F.3d 319, 333 (6th Cir. Tenn. 2001).

<sup>43</sup> Entergy's Motion in Limine at 9.

<sup>44</sup> *See* Entergy's Motion in Limine at footnote 34 (citing Exhibit RIV000060 (Gundersen Testimony at 23:10 to 24:9; 30:8)).

attributable to weapons testing, opinions that he is more than qualified to provide.<sup>45</sup> Mr. Gundersen's 39 years of experience in the nuclear industry includes experience with radiological assessment, and the nature and effect of radionuclides.<sup>46</sup> Furthermore, as a nuclear engineer, Mr. Gundersen has a keen knowledge and understanding of basic nuclear science principles, including radioactive decay. Mr. Gundersen is, thus, well-qualified by knowledge, skill, and experience, to be able to provide an opinion about whether radiological leaks from Indian Point have the potential to impact the Hudson River in the future.

However, Entergy complains that Mr. Gundersen provides "no factual support" and is improperly speculating about the potential adverse impact of Strontium-90 on the Hudson River.<sup>47</sup> Entergy completely ignores the irrefutable facts and documentation that fully support and form the basis for Mr. Gundersen's testimony. For example, Mr. Gundersen relies on Entergy's own data, documents, as well as admissions concerning the presence and migration of Strontium-90 to the Hudson River, to support his conclusions about whether Strontium-90 detected in the environment is attributable to Indian Point. Mr. Gundersen also relies on NRC data relating to previous detections of Strontium-89; Mr. Gundersen applied his extensive background and expertise as a nuclear engineer to opine about the significance of the presence of this shorter-lived isotope. There is simply no basis for Entergy's assertion that Mr. Gundersen made statements based on "subjective belief."

Mr. Gundersen's testimony concerning whether radiological leaks from Indian Point have and will continue to impact the Hudson River will unquestionably assist the ASLB in understanding relevant issues, and any concerns about the ability of Mr. Gundersen to opine

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<sup>45</sup> See Exhibit RIV000060 (Gundersen Testimony at 23:10 to 24:9; 30:8).

<sup>46</sup> See Declaration of Arnold Gundersen (February 15, 2012) at ¶ 6; see also RIV000063 (Gundersen *Curriculum Vitae*).

<sup>47</sup> Entergy's Motion in Limine at 9.

upon the matters cited by Entergy's Motion in Limine go to the weight of such testimony, and the ASLB should not strike it.<sup>48</sup>

Lastly, Entergy claims that Mr. Gundersen's testimony related to human health impacts is not reliable, and should, therefore, be excluded.<sup>49</sup> As an initial matter, any concerns related to the reliability of Mr. Gundersen's testimony should simply go to the weight to be afforded to such testimony, and *not* its admissibility.<sup>50</sup> In fact, Entergy does not appear to question Mr. Gundersen's qualifications to testify about human health impacts, and even acknowledge that Mr. Gundersen has experience in radiological and dose assessments.<sup>51</sup> Thus, there is simply no basis to exclude Mr. Gundersen's testimony from the record at this early stage. Any questions about the reliability of Mr. Gundersen's testimony and conclusions concerning potential impacts to human health from radiological leaks at Indian Point should be reserved for the adjudicatory hearing, where Entergy will have the opportunity to present countervailing evidence.

In any event, Entergy's characterizations about the unreliability of Mr. Gundersen's opinions pertaining to human health impacts are completely unfounded. Entergy once again cites to a case in which Mr. Gundersen performed an evaluation that was ultimately excluded.<sup>52</sup> However, Entergy mischaracterizes the court's finding in that case. In fact, the court determined that Mr. Gundersen's expert report was not scientifically supported, and a "leap of faith" because Mr. Gundersen was forced to rely on hypotheticals and assumptions due to inadequate discovery, for which an adverse inference finding was issued.<sup>53</sup>

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<sup>48</sup> *Duke Energy Corp. (Catawba Nuclear Station, Units 1 and 2)*, CLI-04-21, 60 NRC 21, 27-29 (2004); *See, e.g., First Tenn. Bank Nat'l Ass'n v. Barreto*, 268 F.3d 319, 333 (6th Cir. Tenn. 2001).

<sup>49</sup> Entergy's Motion in Limine at 10.

<sup>50</sup> *See, e.g., First Tenn. Bank Nat'l Ass'n v. Barreto*, 268 F.3d 319, 333 (6th Cir. Tenn. 2001).

<sup>51</sup> Entergy's Motion in Limine at 10; *see also* Declaration of Arnold Gundersen (February 15, 2012) at ¶ 6.

<sup>52</sup> Entergy's Motion in Limine at 10 (citing *Finestone v. Fla Power & Light Co.*, 2006 WL 267330, 12).

<sup>53</sup> *See Finestone v. Fla. Power & Light Co.*, 272 Fed. Appx. 761, 768 (11th Cir. 2008).

In contrast, in the Indian Point license renewal proceeding, Mr. Gundersen has made no unsupported leaps. Instead, his opinions and testimony are based on his expert review of Entergy's own documentation concerning accidental radiological releases from Indian Point into the groundwater and Hudson River. Furthermore, as Entergy points out, Mr. Gundersen has not performed his own specific dose assessment in relation to the releases from Indian Point. Thus, there is no dose methodology to even call into question as there was in the *Finestone* case. Instead, Mr. Gundersen bases his opinions and conclusions on the principles of the National Research Council's Biological Effects of Ionizing Radiation ("BEIR") VII report. This report was generated by a highly-respected organization and is authoritative in scientific communities.<sup>54</sup> In fact, Entergy's own consultants have acknowledged the validity of principles espoused in the BEIR VII Report.<sup>55</sup> Thus, contrary to Entergy's unfounded assertions, Mr. Gundersen's testimony *is* in fact supported by "evidence" and based upon "reliable underlying information."<sup>56</sup>

Moreover, even though Mr. Gundersen has not performed his own independent dose assessment specific to Indian Point, his testimony is based on sound scientific principles contained in the BEIR VII report, and his professional expertise.<sup>57</sup> Mr. Gundersen's broad

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<sup>54</sup> See, e.g., Diego R. Martin, MD, PhD and Richard C. Semelka, MD, Health effects of ionizing radiation from diagnostic CT imaging: Consideration of alternative imaging strategies, *Applied Radiology*, Volume 36, Number 3, March 2007, available at, <http://www.appliedradiology.com/Issues/2007/03/Articles/Health-effects-of-ionizing-radiation-from-diagnostic-CT-imaging--Consideration-of-alternative-imaging-strategies.aspx> (last visited Feb. 16, 2012) ("The seventh National Academy of Science report on Biological Effects of Ionizing Radiation (BEIR VII) is the most recent update from a highly respected organization").

<sup>55</sup> See, e.g., State of New York Department of Environmental Conservation, In the Matter of Entergy Nuclear Indian Point 2, LLC, and Entergy Nuclear Indian Point 3, LLC For a State Pollution Discharge Elimination System Permit Renewal and Modification, DEC No.: 3-5522-00011/00004, SPDES No.: NY-0004472, and Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC, and Entergy Nuclear Operations, Inc. Joint Application for CWA § 401 Water Quality Certification, DEC App. Nos. 3-5522-00011/00030 (IP2) 3-5522-00105/00031, Transcript of Administrative Hearing (Jan. 11, 2012) at p. 3286 (Entergy's consultant Dr. Own Hoffman testifying as follows: "Q. . . it does not appear that you dispute the basic premise of the BEIR VII report that there is a linear no-threshold relationship between exposure and cancer risk. . . . A. [HOFFMAN] That I do not dispute it. That is correct.").

<sup>56</sup> Entergy's Motion in Limine at 10.

<sup>57</sup> *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 N.R.C. 1076 (1983).

experience with dose assessments and human health impacts associated with radiation exposure will undoubtedly assist the ASLB in understanding relevant issues.<sup>58</sup> There is, thus, no basis to strike the testimony cited in Entergy's Motion in Limine, and the ASLB is well situated to give such testimony the weight the ASLB deems appropriate.<sup>59</sup>

**C. Leaks, Spills, and Other Releases from Non Spent Fuel Pool Systems, Structures, and Components are Within the Scope of RK-EC-3/CW-EC-1 and Must be Considered Pursuant to NEPA**

Entergy's Motion in Limine asserts that Mr. Gundersen's testimony concerning leaks from non-spent fuel pool systems, structures and components (including releases from underground/buried pipes, storm drain releases, and airborne releases), is not within the scope of the Consolidated Contention and should be excluded.<sup>60</sup> NRC Staff agrees with Entergy's position.<sup>61</sup> As discussed above, Entergy fundamentally misunderstands the appropriate scope of the Consolidated Contention. Entergy attempts to draw a false distinction between the general scope of a NEPA review and the scope of an admitted contention.<sup>62</sup> However, as explained at length above, the Consolidated Contention involves an inquiry into the "*significance*" of the spent fuel pool leaks at Indian Point.<sup>63</sup> As such, the Consolidated Contention indisputably requires an assessment of the spent fuel pool leaks in light of any cumulative impacts. That is, the analysis of the significance of the leaks cannot take place in a vacuum.<sup>64</sup> Instead, Entergy and NRC Staff must look at the incremental impact of the leaks "when added to other past,

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<sup>58</sup> *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 NRC 21, 29 (2004); *see also Huval v. Offshore Pipelines, Inc.*, 86 F.3d 454, 457-58 (5th Cir. 1996) (an expert's "'broad, general experience' may be useful" and aid a Board in deciding upon the relevant issues).

<sup>59</sup> *See Amergen Energy Comp, LLC* (Oyster Creek Nuclear Generating Station, Docket No. 50-0219-LR, ASLB No. 06-844-01-LR, 2007 NRC LEXIS 120, \*1 (Sept. 12, 2007) (explaining how licensing board chose to "refrain from actually expunging [any] irrelevant material from the record [r]ather, to the extent we conclude that material is irrelevant or otherwise inadmissible, we will accord it no weight"); *see also supra* Note 11.

<sup>60</sup> Entergy's Motion in Limine at 11.

<sup>61</sup> NRC Staff's Response at 5.

<sup>62</sup> Entergy's Motion in Limine at 12.

<sup>63</sup> *See* ASLB July 31, 2008 Contention Admissibility Order at 188 (emphasis added); *see id.* at 192.

<sup>64</sup> *See Grand Canyon Trust v. FAA*, 290 F.3d 339, 346 (D.C. Cir. 2002).

present, and reasonably foreseeable” impacts, and assess “the overall expected impact in light of the accumulation of the individual impacts.”<sup>65</sup>

Accordingly, leaks from non-spent fuel pool systems, structures, and components at Indian Point are squarely relevant to a review of the significance of the spent fuel pool leaks. Entergy’s own documents, submitted by Intervenors in support of Mr. Gundersen’s testimony, undeniably show that other, non-spent fuel pool leaks have contributed to the plumes of contamination that Entergy attributes to the spent fuel pool leaks.<sup>66</sup> Newly introduced radionuclide-laden water will clearly impact the movement and migration of those radionuclides in the groundwater attributable to the spent fuel pool leaks.<sup>67</sup> As such, any non-spent fuel pool leaks cause incremental, cumulative, impacts. These issues, therefore, must be assessed in order to resolve the issues raised and admitted by the Consolidated Contention.

Moreover, contrary to Entergy’s incorrect characterization of the Consolidated Contention, Intervenors did discuss and incorporate issues related to other, non-spent fuel pool, leaks into the contention. In particular, while Entergy claims that Intervenors “failed to include any language” about non-spent fuel pool leaks, this completely ignores the fact that the Consolidated Contention incorporated by reference all of the exhibits originally appended to Intervenors’ respective contentions, including an extensive list of radiological leaks that have occurred at Indian Point.<sup>68</sup>

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<sup>65</sup> *Id.* at 345-46; 40 C.F.R. § 1508.7.

<sup>66</sup> *See, e.g.*, RIV000060 (Gundersen Testimony at 15:28-29, 16:1); Exhibit RIV000071 (Barvenik Direct Testimony at 10-11).

<sup>67</sup> *See, e.g.*, RIV000060 (Gundersen Testimony at 15:28-29, 16:1); Exhibit RIV000071 (Barvenik Direct Testimony at 10-11).

<sup>68</sup> *See* Consolidated Contention of Petitioners Riverkeeper, Inc. (EC-3) and Hudson River Sloop Clearwater, Inc. (EC-1)-Spent Fuel Pool Leaks (August 21, 2008), ADAMS Accession No. unknown, at 4 (“this consolidated contention incorporates by reference any and all attached exhibits, supporting documentation and references to supporting documentation cited by Riverkeeper and Clearwater as support for their respective contentions EC-3 and EC- 1.”); Hudson River Sloop Clearwater Inc.’s Petition to Intervene and Request for Hearing (December 10, 2007), at Exhibit 3 (Timeline of Leaks at Indian Point by Jonathan Stanton, November 24, 2007) ADAMS Accession No. ML073520042).

In any event, the ASLB should refrain from excluding the testimony cited in Entergy's Motion in Limine, as the ASLB is well suited to afford the weight it deems necessary to such testimony.<sup>69</sup>

**D. Entergy's Aging Management Programs Concerning Leak Susceptible Buried Components are Within the Scope of RK-EC-3/CW-EC-1 and Must be Considered Pursuant to NEPA**

Entergy's Motion in Limine, supported by NRC Staff, asserts that Mr. Gundersen's testimony concerning Entergy's aging management programs for buried pipes is outside the scope of the Consolidated Contention.<sup>70</sup> However, Entergy improperly characterizes Mr. Gundersen's testimony as a "direct" challenge to the adequacy of Entergy's aging management programs.<sup>71</sup> This is not the case. Instead, Mr. Gundersen points to the various inadequacies with Entergy's ability to manage aging buried components at Indian Point because this has bearing upon the likely cumulative environmental consequences posed by the spent fuel pool leaks. That is, likely future leaks from buried components due to inadequate aging management will result in cumulative impacts that must be assessed, as discussed at length above.<sup>72</sup> Neither Mr. Gundersen, nor Intervenors challenge the safety findings associated with the referenced aging management plans; rather, Mr. Gundersen and Intervenors only discuss Entergy aging management programs to the extent the implementation of such programs pose reasonably foreseeable *environmental* impacts. Such impacts must be considered in order to determine the overall significance of the spent fuel pool leaks at Indian Point.<sup>73</sup> Nor is consideration of these

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<sup>69</sup> See *supra* Note 59.

<sup>70</sup> Entergy's Motion in Limine at 12-13; NRC Staff's Response at 5-6.

<sup>71</sup> Entergy's Motion in Limine at 12-13.

<sup>72</sup> See *Grand Canyon Trust v. FAA*, 290 F.3d 339, 346 (D.C. Cir. 2002).

<sup>73</sup> See ASLB July 31, 2008 Contention Admissibility Order at 188; *see id.* at 192.

programs precluded in a NEPA review, simply because they are otherwise related to plant safety.<sup>74</sup>

Thus, Mr. Gundersen's testimony related to buried pipes at Indian Point is entirely appropriate, and, as proffered, properly within the scope of the Consolidated Contention. In any event, the ASLB should refrain from excluding the testimony cited in Entergy's Motion in Limine, as the ASLB is well suited to afford the weight it deems necessary to such testimony.<sup>75</sup>

**E. Entergy's Use of Monitored Natural Attenuation and Failure to Implement Other Mitigation Alternatives, Including Extraction, are Properly Within the Scope of RK-EC-3/CW-EC-1 and Must be Considered Pursuant to NEPA**

Entergy's Motion in Limine, supported by NRC Staff, requests the exclusion of Mr. Gundersen's testimony related to Entergy's use of Monitored Natural Attenuation ("MNA") and Entergy and NRC Staff's failure to consider and assess alternative remediation strategies such as extraction, at Indian Point.<sup>76</sup> Entergy and NRC Staff assert that "site remediation decisions" pertaining to the "current [operating] term" are outside the scope of the proceeding.<sup>77</sup> Intervenor's disagree. The fact that NRC has approved certain "remediation decisions" related to the radiological contamination at Indian Point does *not* preclude a review of mitigation measures in the context of a NEPA review. In fact, a licensing board has acknowledged that current licensing issues are relevant if "current practices will form part of . . . [the] management program during the license renewal term," and refused "to exclude evidence merely because it touches upon Entergy's CLB."<sup>78</sup> Thus, Entergy's continued use of MNA during the license renewal term, and failure to institute extraction as a remediation strategy during same, *is* relevant.

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<sup>74</sup> See *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d 1989).

<sup>75</sup> See *supra* Note 59.

<sup>76</sup> See Entergy's Motion in Limine at 13-14; NRC Staff's Response at 6.

<sup>77</sup> See Entergy's Motion in Limine at 14.

<sup>78</sup> See, e.g., In the Matter of Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), Docket Nos. 50-271-LR, ASLBP No. 06-849-03-LR, Order (Ruling on Motions to Strike and Motions in Limine), July 16, 2008, at 10.

As discussed above, a full analysis of mitigation alternatives is necessary in order to properly evaluate the “*significance*” of the radiological contamination and spent fuel pool leaks at Indian Point.<sup>79</sup> Indeed, varying mitigation measures will result in differing long-term impacts *during the license renewal period*, none of which have been considered to date. Thus, Entergy’s insistence that this proceeding “only concerns the IP2 and IP3 license renewal”<sup>80</sup> actually demonstrates why a complete analysis of mitigation alternatives, including the existing use of MNA, and the potential for extraction, is necessary. Thus, notwithstanding what is actually being carried out at the site now, or what NRC is considering on an industry-wide scale, an independent assessment of the feasibility, efficacy, etc, of differing mitigation measures *at Indian Point*, is absolutely essential *pursuant to NEPA*, so that the Federal agency can make informed determinations about action at issue, i.e., the proposed license renewal of the plant.

Thus, the testimony cited in Entergy’s Motion in Limine is highly relevant, within the scope of the contention, and within the scope of the proceeding. In any event, the ASLB should refrain from excluding any of Mr. Gundersen’s testimony, as the ASLB is well suited to afford the weight it deems necessary to such testimony.<sup>81</sup>

#### **F. Intervenors’ Proffered Testimony and Exhibits do not Constitute an Impermissible Challenge to NRC Dose and Reporting Requirements**

Entergy’s Motion in Limine, supported by NRC Staff, alleges that Mr. Gundersen’s testimony includes impermissible challenges to NRC’s dose and reporting regulations.<sup>82</sup>

Entergy’s and NRC Staff’s assertions are unfounded and incorrect, and the testimony and exhibits identified by Entergy as allegedly attacking NRC regulations should not be stricken.

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<sup>79</sup> See *Robertson*, 490 U.S. at 351-52 (citations omitted) (“[w]ithout such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.”)

<sup>80</sup> Entergy’s Motion in Limine at 14.

<sup>81</sup> See *supra* Note 59.

<sup>82</sup> Entergy’s Motion in Limine at 15-16; NRC Staff’s Response at 6.

First, Entergy's Motion in Limine claims that Mr. Gundersen's testimony about, and references to, the BEIR VII report, (which indicates that any release from Indian Point into the Hudson River can affect those exposed through recreational activities), constitutes an "impermissible challenge to . . . Table B-1 of Part 51, which establishes that radiological releases that are within the permissible levels specified in NRC regulations have a SMALL impact on human health."<sup>83</sup> NRC Staff similarly argues that "complaints that the NRC's dose standards . . . are inadequate constitute challenges to the Commission's regulations."<sup>84</sup>

Entergy and NRC Staff's position is flawed and the testimony and exhibits proffered by Mr. Gundersen in no way amount to a challenge to NRC's dose regulations. To begin with, a finding that the groundwater contamination results in an "acceptable" dose as calculated pursuant to NRC dose regulations does not absolve Entergy and NRC Staff from fully considering potential impacts to public health and safety under NEPA. Indeed, it is well settled that an NRC finding of adequate protection of public health and safety under the Atomic Energy Act does not preclude the need for further consideration of a particular issue under NEPA.<sup>85</sup> NRC's dose regulations were "issued under the Atomic Energy Act."<sup>86</sup> Thus, whether or not the spent fuel pool leaks at Indian Point result in a dose to the public that complies with NRC's dose regulations, does not end the inquiry in the context of an environmental review pursuant to NEPA. As such, Mr. Gundersen has not "challenged" the NRC's dose regulations, or NRC's regulation that characterizes doses that fall within NRC dose limits as "small." Rather, Mr. Gundersen has identified *additional* matters that are relevant to the question of whether the spent

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<sup>83</sup> Entergy's Motion in Limine at 15; *see also id.* at 7-8

<sup>84</sup> NRC Staff's Response at 6.

<sup>85</sup> *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d 1989); *see id.* (explaining that the language of NEPA, which requires agencies to comply "to the fullest extent possible," indicates that Congress did not intend that NEPA review be precluded by the Atomic Energy Act ("AEA"). Since there is no language in the AEA to indicate that the AEA precludes NEPA review, the legislative history of the phrase "to the fullest extent possible" indicates that Congress intended that NEPA not be limited by other statutes by implication).

<sup>86</sup> 10 C.F.R. § 20.1001.

fuel pool leaks may impact public health and safety; such matters are critical and necessary to a complete NEPA review.

Indeed, the ASLB found that despite Entergy's claim that the dose resulting from the groundwater contamination at Indian Point was "well below the NRC limit," Clearwater's proffered contention was "*not* an impermissible challenge to Commission regulations" since there was still a question relating to the maximum groundwater impact of the contamination and the maximum dose.<sup>87</sup> Thus, the ASLB has already indicated that an inquiry into the maximum impact of the groundwater contamination *is not* an impermissible challenge to NRC's dose regulations. The ASLB similarly found that Riverkeeper's initial contention was admissible despite Entergy's assertions that the spent fuel pool leaks are "not significant" because the resulting dose to the public is "minimal," since Riverkeeper asserted that the release concentrations were "not low."<sup>88</sup> Thus, Riverkeeper's position that additional impacts had yet to be assessed also did not constitute an impermissible challenge to NRC dose regulations.

Moreover, the NRC regulation cited in Entergy's Motion in Limine, i.e., Table B-1 of Part 51, memorializes the conclusions of the NRC's 1996 Generic Environmental Impact Statement ("GEIS") relating to nuclear power plant license renewal.<sup>89</sup> However, the environmental impacts of accidental radiological leaks *were not assessed* in the GEIS.<sup>90</sup> As a result, the conclusions contained in Table B-1 of Part 51 pertaining to the assessment of "radiological impacts" simply do not apply to the impacts of accidental radiological leaks. This

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<sup>87</sup> ASLB July 31, 2008 Contention Admissibility Order at 192.

<sup>88</sup> *Id.* at 188.

<sup>89</sup> See 10 C.F.R. § Part 51 Appendix B to Subpart A--Environmental Effect of Renewing the Operating License of a Nuclear Power Plant.

<sup>90</sup> See NUREG-1437, *Generic Environmental Impact Statement for License Renewal of Nuclear Plants*, Revision 1, Draft Report for Comment, available at, <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1437/r1/v1/sr1437r1v1.pdf> at 4-40 ("The following nine issues concern impacts on groundwater that may occur during the license renewal term . . . Radionuclides released to groundwater (*new issue not considered in the 1996 GEIS*)" (emphasis added)).

issue was not contemplated at all in the formulation of the Commission’s conclusions concerning radiological impacts. This is precisely why this issue was framed and admitted in relation to “new and significant information” that had yet to be properly considered.<sup>91</sup>

In sum, Mr. Gundersen’s testimony and supporting exhibits cannot properly be characterized as challenging NRC’s dose regulations.

Second, Entergy’s Motion in Limine claims that Mr. Gundersen’s testimony relating to a mitigation measure involving the disclosure of radiological monitoring results to the public is a challenge to NRC’s regulations requiring the submission of reports related to radiological releases.<sup>92</sup> This position is flawed. First, neither Mr. Gundersen, nor Intervenors challenge NRC’s reporting requirement in any way, but rather, have pointed to a reasonable mitigation alternative that warrants review and consideration pursuant to NEPA, in order to determine the “*significance*” of the radiological contamination and spent fuel pool leaks at Indian Point.<sup>93</sup> The existence of certain reporting requirements does not preclude a review of reasonable mitigation measures in the context of a NEPA review. Furthermore, there is no way to construe Mr. Gundersen’s testimony as a challenge to NRC reporting requirements, since, as cited by Entergy, such requirements pertain to NRC-to-licensee communications about radiological releases. In contrast, Mr. Gundersen’s testimony discusses the usefulness of Entergy disclosing information *to the public*, not to NRC. Thus, Mr. Gundersen has not called into question what NRC requires Entergy to keep the NRC informed about.

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<sup>91</sup> Riverkeeper Petition to Intervene at 77, 79; Riverkeeper and Hudson River Sloop Clearwater Initial Statement of Position Regarding Consolidated Contention RK-EC-3/CW-EC-1 (Spent Fuel Pool Leaks), at 13-16; ASLB July 31, 2008 Contention Admissibility Order at 187-88 (“Even though the NRC Staff claims that Riverkeeper’s allegations are an impermissible challenge to the regulations, Entergy is required to address new and significant information for either Category 1 or Category 3 issues in its ER for a LRA. Leaks from the spent fuel pools are new information which . . .”).

<sup>92</sup> Entergy’s Motion in Limine at 16.

<sup>93</sup> See *Robertson*, 490 U.S. at 351-52 (citations omitted) (“[w]ithout such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.”)

Thus, the ASLB should not strike Mr. Gundersen's testimony as cited by Entergy, because it does not challenge NRC's reporting regulations. In any event, the ASLB should refrain from excluding any of Mr. Gundersen's testimony, as the ASLB is well suited to afford the weight it deems necessary to such testimony.<sup>94</sup>

**G. Intervenors' Use of the Draft Generic Environmental Impact Statement concerning Nuclear Power Plant License Renewal was Entirely Appropriate**

Entergy's Motion in Limine, supported by NRC Staff, requests the exclusion of an excerpt of the NRC's Draft GEIS concerning nuclear power plant license renewal, which Intervenors submitted as a hearing exhibit in support of the Consolidated Contention.<sup>95</sup> The ASLB should deny this request. Although the rulemaking process relating to the draft GEIS is still ongoing,<sup>96</sup> the statements contained therein constitute statements and positions of a party to the proceeding, and in particular, a party that opposes the issues raised by Consolidated Contention.<sup>97</sup> Though the Draft GEIS is not yet binding guidance, NRC Staff's statements relating to the appropriateness of the environmental review of accidental radiological leaks in the draft GEIS are relevant to, and will assist the ASLB's understanding of, issues raised in the Consolidated Contention. Moreover, exclusion of Intervenors' exhibit is not necessary since the ASLB is capable and, in fact well-suited to give the information the weight it deems appropriate.<sup>98</sup>

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<sup>94</sup> See *supra* Note 59.

<sup>95</sup> Entergy's Motion in Limine at 16; NRC Staff's Response at 6; see Exhibit RIV000064.

<sup>96</sup> A Commission meeting was held on January 11, 2011 to discuss the anticipated changes to the Draft GEIS, indicating that the process may be coming to a close in the near future. See Scheduling Note, Briefing on Proposed Rule to Revise the Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, <http://www.nrc.gov/reading-rm/doc-collections/commission/agenda/2012/agenda-20120111.pdf>.

<sup>97</sup> See In the Matter of Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3), Docket Nos. 50-0247-LR and 50-286-LR, ASLBP No. 07-858-03-LR-BD01, NRC Staff's Statement in Response to the Atomic Safety and Licensing Board's Order of February 3, 2012 (Feb. 8, 2012), at 1 ("the Staff's position is likely to support Entergy's positions on the admitted contentions").

<sup>98</sup> See *supra* Note 59.

**H. Mr. Gundersen's Testimony Concerning Indian Point Unit 1 are Properly within the Scope of RK-EC-3/CW-EC-1 and this Proceeding and Must be Considered Pursuant to NEPA**

Entergy's Motion in Limine, supported by NRC Staff, claims that Mr. Gundersen's testimony related to contamination from Indian Point Unit 1 spent fuel pools is beyond the scope of this proceeding.<sup>99</sup> Entergy has already attempted several times to make this argument throughout the course of this proceeding, to no avail.<sup>100</sup> Indeed, the leaks that have occurred from the Unit 1 spent fuel pools are squarely within the scope of the Consolidated Contention and the proceeding.

Entergy makes much of Intervenor's mention of the deferred decommissioning of Indian Point Unit 1. However, Intervenor has not attempted to raise any issues with regard to the particulars of the decommissioning process, but instead mention decommissioning in order to properly frame how the legacy contamination attributable to the Indian Point Unit 1 spent fuel pool will continue to impact the environment *during the license renewal process*. Therefore, contrary to Entergy's position, there is absolutely a "nexus" between license renewal of Units 2 and 3, and the decommissioning of Unit 1: as long as Units 2 and 3 continue to operate, the contamination from Unit 1 will continue to release to the groundwater and have an impact on the environment.

Moreover, Entergy is mistaken in its position that simply because the Indian Point Unit 1 spent fuel pools have been drained that the past radiological leaks are no longer a concern. As Mr. Gundersen's testimony indicates, the residual contamination is found in subsurface

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<sup>99</sup> Entergy's Motion in Limine at 16-17; NRC Staff Response at 6-7.

<sup>100</sup> For example, despite Entergy's identical argument in response to Riverkeeper's originally proffered contention, the ASLB did limit the scope of the contention to exclude leaks from IP Unit 1. *See, e.g.*, Answer of Entergy Nuclear Operations, Inc. Opposing Riverkeeper Inc.'s Request for Hearing and Petition to Intervene, January 22, 2008, at 149, ADAMS Accession No. ML080300071 ("IP1-SFP leak is clearly beyond the scope of this license renewal proceeding"); ASLB July 31, 2008 Contention Admissibility Order at 187-88, 192. Entergy then made this same failing argument in a Motion for Reconsideration of the ASLB's admission of Riverkeeper's contention, and again, in an interlocutory appeal to the Commission.

structures, and will continue to periodically release radionuclides to the groundwater *throughout* the license renewal period.<sup>101</sup> Likewise, other active leaks from Unit 1 components and structures remain ongoing, as Mr. Gundersen has testified.<sup>102</sup> Thus, even though Unit 1 is not the subject of the license renewal proceeding, because it will continue to exist without being dismantled and the site remediated, leaks attributable to Unit 1 components, past and present, are highly relevant to the issues raised in the Consolidated Contention. Notably, the radionuclides leaked from the Unit 1 spent fuel pools cause cumulative impacts when combined with leaks from the Unit 2 pools and other components. Such impacts must be assessed in order to determine the “significance” of the spent fuel pool leaks at Indian Point.<sup>103</sup>

Therefore, the ASLB should not strike any of Mr. Gundersen’s testimony pertaining to leaks from Indian Point Unit 1. Exclusion is particularly improper, since the ASLB well suited to afford the weight it deems necessary to the cited testimony.<sup>104</sup>

**I. Mr. Gundersen’s Testimony Concerning Entergy’s Approach to Radiological Leak Management is Squarely Relevant and Within the Scope of RK-EC-3/CW-EC-1 and Must be Considered Pursuant to NEPA**

Entergy’s Motion in Limine, supported by NRC Staff, seeks the exclusion of testimony provided by Mr. Gundersen concerning Entergy’s approach to accidental leak management.<sup>105</sup> However the testimony cited is relevant to the Consolidated Contention. Entergy’s reactive approach to managing radiological leaks and its apparent deficiencies in funding plant maintenance programs go directly to the question of whether future leaks at Indian Point, *during the license renewal term*, are likely. Thus, this testimony is relevant to determining the “significance” of spent fuel pool leaks at Indian Point, since this must include an assessment of

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<sup>101</sup> See RIV000060 (Gundersen Testimony at 12).

<sup>102</sup> *Id.* at 13:17-23.

<sup>103</sup> See ASLB July 31, 2008 Contention Admissibility Order at 188 (emphasis added); see *id.* at 192; *Grand Canyon Trust v. FAA*, 290 F.3d 339, 345-46 (D.C. Cir. 2002); 40 C.F.R. § 1508.7.

<sup>104</sup> See *supra* Note 59.

<sup>105</sup> Entergy’s Motion in Limine at 17; NRC Staff’s Response at 6.

all reasonably foreseeable future impacts that will contribute to cumulative impacts of the spent fuel pool leaks, as discussed above.<sup>106</sup> Furthermore, Mr. Gundersen's testimony relies largely upon a review Entergy's own documentation, and is, thus, reliable and supported. Exclusion of the cited testimony is especially not warranted, since the ASLB can afford the weight it deems necessary to Mr. Gundersen's statements.<sup>107</sup>

**J. Dr. Stewart is a Properly Qualified Witness Whose Testimony Will Assist the ASLB in Understanding Relevant Facts**

Entergy's Motion in Limine, supported by NRC Staff, claims that Intervenors have not demonstrated that Dr. Gillian Stewart is qualified to offer an expert opinion related to human health impacts from exposure to radiation.<sup>108</sup> Entergy arbitrarily claims that a prerequisite for offering an opinion on this matter is expertise in NRC dose assessments.<sup>109</sup> However, as discussed at length above, an environmental review pursuant to NEPA of potential impacts to human health is not limited to the question of whether or not the radiological leaks comply with NRC dose limits.<sup>110</sup> Thus, simply because Dr. Stewart may not be familiar with the NRC dose equations and calculations does not disqualify her to opine upon potential health impacts from radiation exposure.

In fact, Dr. Stewart is more than qualified to provide such opinion. The health effects of radiation exposure are well-known and commonly understood among those working in radiochemistry and radioecology, as well as those working in environmental science disciplines. Thus, Dr. Stewart's education, knowledge, and experience qualify her to provide an expert

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<sup>106</sup> See ASLB July 31, 2008 Contention Admissibility Order at 188 (emphasis added); see *id.* at 192; *Grand Canyon Trust v. FAA*, 290 F.3d 339, 345-46 (D.C. Cir. 2002); 40 C.F.R. § 1508.7.

<sup>107</sup> See *supra* Note 59.

<sup>108</sup> Entergy's Motion in Limine at 18-19; NRC Staff's Response at 7.

<sup>109</sup> Entergy's Motion in Limine at 18, 19.

<sup>110</sup> *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d 1989).

opinion.<sup>111</sup> Moreover, it is evident that Dr. Stewart relies at least in part on the BEIR VII report for her opinions concerning human health effects.<sup>112</sup> This is an authoritative and reliable report, as discussed above. In sum, Dr. Stewart’s testimony should not be stricken. Dr. Stewart’s “‘broad, general experience’ may be useful” and aid the ASLB in deciding upon relevant issues; to the extent there are any “[g]aps” in Dr. Stewart’s particular knowledge,” this clearly goes to the weight of her testimony, and *not* to its admissibility.<sup>113</sup>

Entergy further asserts that Dr. Stewart’s opinion that the radioactivity detected in desalination-related sampling can be attributed to Indian Point amounts to unsupported speculation.<sup>114</sup> However, Dr. Stewart reviewed documents generated *by Entergy* about the well-documented radiological leakage issues at the plant, and applied her undisputed expertise pertaining to the fate and transport of radionuclides to arrive at her opinions. Her testimony is clearly not “subjective belief” and is adequately supported. It is not appropriate for the ASLB to exclude Dr. Stewart’s opinions at this time, since any concerns about the reliability of her opinions can be tested at the hearing and dealt with by according her testimony appropriate weight.<sup>115</sup>

#### **K. Dr. Stewart’s Testimony Does not Constitute an Impermissible Challenge to NRC Dose Regulations**

Entergy’s Motion in Limine, supported by NRC Staff, claims that Dr. Stewart’s testimony related to the adverse health impacts of low-level radiation exposure amounts to an “impermissible challenge to NRC’s regulations.”<sup>116</sup> For the same reasons discussed at length

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<sup>111</sup> See *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 NRC 21, 27-28 (2004).

<sup>112</sup> See RIV000061 at 3:12-13 (discussing “linear, no threshold response curve between human exposure to radioactivity and solid cancers”).

<sup>113</sup> *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 NRC 21, 29 (2004); see also *supra* Note 59.

<sup>114</sup> Entergy’s Motion in Limine at 18-19.

<sup>115</sup> See *supra* Note 59.

<sup>116</sup> Entergy’s Motion in Limine at 19; NRC Staff’s Response at 6.

above, Entergy and NRC Staff's assertions are misguided, and the testimony and exhibits identified by Entergy as allegedly attacking NRC regulations should not be excluded.<sup>117</sup>

**L. The Portions of Intervenors' Statement of Position Addressing the Testimony and Exhibits Identified in Entergy's Motion in Limine Should Not Be Excluded**

Entergy requests that, to the extent the ASLB grants Entergy's Motion in Limine, the portions of Intervenors' Statement of Position that discuss any evidence that is excluded, should also be excluded.<sup>118</sup> However, as Entergy acknowledges, this is not necessary since statements of position are "not admitted as evidence" but rather, are "considered by the Board in its merits ruling to the extent they are based on admitted evidence."<sup>119</sup> Intervenors agree that, whatever the ASLB's ruling is on any matters raised in Entergy's Motion in Limine, the ASLB should refrain from excluding *any* portions of Intervenors' Statement of Position concerning the Consolidated Contention, since the ASLB is well suited to afford the appropriate weight to the statements contained in Intervenors' Statement of Position.<sup>120</sup>

**IV. CONCLUSION**

For the foregoing reasons, Entergy's Motion in Limine should be denied in its entirety.<sup>121</sup>

Respectfully submitted,

***Signed (electronically) by Deborah Brancato***

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<sup>117</sup> See *supra* pages 16-19.

<sup>118</sup> Entergy's Motion in Limine at 20.

<sup>119</sup> See *id.* (citing *Calvert Cliffs 3 Nuclear Project, LLC* (Combined License Application for Calvert Cliffs Unit 3), Licensing Board Order (Granting in Part and Denying in Part NRC Staff's Motion in Limine) at 5 (Jan. 17, 2012).

<sup>120</sup> See *supra* Note 59.

<sup>121</sup> Intervenors understand that to the extent the ASLB grants any portions of Entergy's Motion in Limine, such a ruling would be final and therefore preserve any such excluded evidence for the record on appeal.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
ATOMIC SAFETY AND LICENSING BOARD

_____	)	
In the Matter of	)	Docket Nos.
	)	50-247-LR
Entergy Nuclear Operations, Inc.	)	and 50-286-LR
(Indian Point Nuclear Generating	)	
Units 2 and 3)	)	February 17, 2012
_____	)	

**Certification Pursuant to 10 C.F.R. § 2.323(b)**

I certify that I have made a sincere effort to make myself available to listen and respond to the moving party, and to resolve the factual and legal issues raised in the motion, and that my efforts to resolve the issues have been unsuccessful.

*Signed (electronically) by Deborah Brancato*

Deborah Brancato, Esq.