

# **NUCLEAR REGULATORY COMMISSION ISSUANCES**

## **OPINIONS AND DECISIONS OF THE NUCLEAR REGULATORY COMMISSION WITH SELECTED ORDERS**

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July 1, 2013 – December 31, 2013

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## PREFACE

This is the seventy-eighth volume of issuances (1-583) of the Nuclear Regulatory Commission and its Atomic Safety and Licensing Boards, Administrative Law Judges, and Office Directors. It covers the period from July 1, 2013, to December 31, 2013.

Atomic Safety and Licensing Boards are authorized by Section 191 of the Atomic Energy Act of 1954. These Boards, comprised of three members, conduct adjudicatory hearings on applications to construct and operate nuclear power plants and related facilities and issue initial decisions which, subject to internal review and appellate procedures, become the final Commission action with respect to those applications. Boards are drawn from the Atomic Safety and Licensing Board Panel, comprised of lawyers, nuclear physicists and engineers, environmentalists, chemists, and economists. The Atomic Energy Commission (AEC) first established Licensing Boards in 1962 and the Panel in 1967.

Between 1969 and 1990, the AEC authorized Atomic Safety and Licensing Appeal Boards to exercise the authority and perform the review functions which would otherwise have been exercised and performed by the Commission in facility licensing proceedings. In 1972, that Commission created an Appeal Panel, from which were drawn the Appeal Boards assigned to each licensing proceeding. The functions performed by both Appeal Boards and Licensing Boards were transferred from the AEC to the Nuclear Regulatory Commission by the Energy Reorganization Act of 1974. Appeal Boards represented the final level in the administrative adjudicatory process to which parties could appeal. Parties, however, were permitted to seek discretionary Commission review of certain board rulings. The Commission also could decide to review, on its own motion, various decisions or actions of Appeal Boards.

On June 29, 1990, however, the Commission voted to abolish the Atomic Safety and Licensing Appeal Panel, and the Panel ceased to exist as of June 30, 1991. Since then, the Commission itself reviews Licensing Board and other adjudicatory decisions, as a matter of discretion. *See 56 FR 29403 (1991).*

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Issuances are referred to as follows: Commission (CLI), Atomic Safety and Licensing Boards (LBP), Administrative Law Judges (ALJ), Directors' Decisions (DD), and Decisions on Petitions for Rulemaking (DPRM).

The summaries and headnotes preceding the opinions reported herein are not to be deemed a part of those opinions or to have any independent legal significance.

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Alex S. Karlin**, Chairman  
**Dr. Paul B. Abramson**  
**Dr. Gary S. Arnold**

**In the Matter of**

**Docket Nos. 50-327-LR  
50-328-LR  
(ASLBP No. 13-927-01-LR-BD01)**

**TENNESSEE VALLEY AUTHORITY  
(Sequoah Nuclear Plant, Units 1  
and 2)**

**July 5, 2013**

The Board places this adjudicatory proceeding in abeyance. Seven of the contentions do not meet the admissibility criteria of 10 C.F.R. § 2.309(f)(1)(i)-(vi). The remaining contention (Contention B), however, is based on a recent decision (*New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012)) that vacated NRC's regulation assessing the environmental impact of the storage and disposal of spent nuclear fuel generated by nuclear power reactors such as Sequoyah Units 1 and 2. To the extent that Contention B raises safety issues, it is denied. To the extent that Contention B raises environmental issues, it is held in abeyance, without being admitted or denied, pending further order from the Commission, in accordance with *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63 (2012).

**RULES OF PRACTICE: STANDING**

Petitioner Blue Ridge Environmental Defense League (BREDL) established standing by submitting declarations from sixteen individuals who each stated

that he or she (a) is a member of BREDL; (b) resides within 50 miles of the Sequoyah Nuclear Plant; and (c) authorizes BREDL to represent him or her in this proceeding.

#### **RULES OF PRACTICE: STANDING**

Petitioners Bellefonte Efficiency and Sustainability Team (BEST) and Mothers Against Tennessee River Radiation (MATRR) did not establish standing because they did not submit any declarations from individuals asserting that he or she (a) is a member of BEST or MATRR; (b) resides within 50 miles of the proposed facility; and (c) authorizes the organization to represent him or her in this proceeding.

#### **RULES OF PRACTICE: STANDING**

The fact that a petitioner is a “chapter” or a “project” of another petitioner that has established standing, does not mean that the chapter or project also has standing. If a chapter or project wants to participate in an adjudication as a separate party, then it must show its own standing, either organizational or representational.

#### **RULES OF PRACTICE: STANDING**

Although BEST and MATRR had the opportunity to cure the defects in their showing of standing in their replies, *see South Carolina Electric & Gas Co.* (Virgil C. Summer Nuclear Station, Units 2 and 3), CLI-10-1, 71 NRC 1, 7 (2010), they failed to do so.

#### **RULES OF PRACTICE: CONTENTIONS (SCOPE AND MATERIALITY)**

Determining whether a contention is within the scope of the proceeding, as required by 10 C.F.R. § 2.309(f)(1)(iii), or is material to the proceeding, as required by 10 C.F.R. § 2.309(f)(1)(iv), requires an understanding as to what legal requirement has allegedly not been met. The scope and/or materiality of a contention alleging that the application “fails to adequately address the risk of flooding” necessitates the identification of the law, regulation, or case law that has allegedly not been met, i.e., that requires the application to address the risk of flooding.

### **RULES OF PRACTICE: CONTENTIONS (SCOPE)**

Contention A, which alleges that the application fails to adequately address the risk of flooding, is an allegation that TVA is not in compliance with the requirements of its current licensing basis and therefore the contention is not admissible because CLB compliance is not within the scope of a license renewal proceeding pursuant to 10 C.F.R. §§ 54.30(b), 2.309(f)(1)(iii).

### **RULES OF PRACTICE: CONTENTIONS (ABEYANCE)**

Contention B is based on a recent decision (*New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012)) that vacated NRC's regulation assessing the environmental impact of the storage and disposal of spent nuclear fuel generated by nuclear power reactors such as Sequoyah Units 1 and 2. To the extent that Contention B raises safety issues, it is denied as being outside of the scope of this license renewal process. To the extent that Contention B raises environmental issues, it is held in abeyance, without being admitted or denied, pending further order from the Commission, in accordance with *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63 (2012).

### **RULES OF PRACTICE: CONTENTIONS (MATERIALITY)**

To the extent that Contention C is a “safety” contention, alleging that the existence of higher cancer death rates in four counties suggests that the Sequoyah nuclear plant is not operating in accordance with its current licensing basis (CLB), the contention is not admissible because CLB compliance is not within the scope of a license renewal proceeding pursuant to 10 C.F.R. §§ 54.30(b), 2.309(f)(1)(iii).

### **RULES OF PRACTICE: CONTENTIONS (SUPPORTING INFORMATION)**

To the extent that Contention C is an “environmental” contention, alleging that the existence of higher cancer death rates in four counties means that TVA’s environmental report is erroneous when it concludes that the environmental impacts (human health impacts) of radiation from the Sequoyah nuclear plant will be “small,” the contention is not admissible due to the failure to satisfy the requirements of 10 C.F.R. § 2.309(f)(1)(v) to provide sufficient supporting information.

### **RULES OF PRACTICE: CONTENTIONS (SCOPE)**

Contention D, which alleges that the time-limited aging analysis (TLAA) in

the application is inadequate because it fails to discuss a number of safety-related incidents that allegedly occurred at the Sequoyah nuclear plant over the last 14 years is not admissible, because NRC regulates compliance with such incidents under TVA's current licensing basis, and they are not within the scope of a license renewal proceeding pursuant to 10 C.F.R. §§ 54.30(b), 2.309(f)(1)(iii).

#### **RULES OF PRACTICE: CONTENTIONS (SPECULATIVE)**

Contention E, which alleges that the license renewal application is deficient because it fails to consider the use of plutonium fuel at the Sequoyah nuclear plant is speculative and not admissible because TVA has not proposed to use plutonium fuel at these reactors. If and when TVA endeavors to use such fuel at the Sequoyah nuclear plant, TVA will need to seek a license amendment from NRC, and the petitioners will have an opportunity to challenge the proposal at that time.

#### **RULES OF PRACTICE: CONTENTIONS (GENUINE DISPUTE)**

Contention F-1, which alleges that the license renewal application lacks an acceptable aging management plan to adequately maintain the ice condenser containment system is not admissible because the Petitioner fails to acknowledge and confront the ice condenser aging management plans that are contained in the application and to show that there is a genuine dispute with these plans, as required by 10 C.F.R. § 2.309(f)(1)(vi).

#### **RULES OF PRACTICE: CONTENTIONS (MATERIALITY)**

Contention F-2, which alleges that the license renewal application is deficient because TVA fails to prove that the containment system at the Sequoyah nuclear plant can withstand a severe accident without leaking, is not material under 10 C.F.R. § 2.309(f)(1)(iv) because there is no legal requirement that a nuclear power plant be completely leakproof during a severe accident.

#### **RULES OF PRACTICE: CONTENTIONS (SCOPE AND MATERIALITY)**

Contention F-3 alleges that TVA has "ongoing systemic problems" such as a "longstanding breakdown in dealing with the mismanagement of its whistleblower complaints" and that these problems reflect a "lack of integrity" indicating that the "accuracy and validity of the license renewal application cannot be assured and therefore must be rejected." While allegations regarding whistleblower retaliation

and management integrity are a serious matter, they are precisely the sort of issues that NRC continuously regulates as part of the current licensing basis and which are excluded from the scope of license renewal proceedings under 10 C.F.R. § 54.30(b), *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC 427, 432 (2011), and *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-10-27, 72 NRC 481, 484 (2010).

## **MEMORANDUM AND ORDER** **(Ruling on Petition to Intervene and Request for Hearing)**

This proceeding arises from an application filed with the U.S. Nuclear Regulatory Commission (NRC) by the Tennessee Valley Authority (TVA) to renew its licenses to operate two nuclear power reactors located at TVA's Sequoyah Nuclear Plant (Sequoyah).<sup>1</sup> Sequoyah is located approximately 18 miles northeast of Chattanooga, Tennessee, and consists of two reactors — Sequoyah Unit 1 and Unit 2. The license for Unit 1 expires on September 17, 2020, and the license for Unit 2 expires on September 15, 2021. TVA seeks to renew these licenses for an additional 20 years. 78 Fed. Reg. at 14,362.

On May 6, 2013, three entities — the Blue Ridge Environmental Defense League (BREDL), Bellefonte Efficiency and Sustainability Team (BEST), and Mothers Against Tennessee River Radiation (MATRR) (collectively, Petitioners) — jointly challenged TVA's license renewal application (LRA) by filing a petition to intervene and request for a hearing (Petition).<sup>2</sup> The Petitioners have put forth eight contentions alleging that the LRA is deficient and should not be granted.

For the reasons set forth below, the Board concludes that BREDL has established standing to intervene and has proffered a portion of one contention — Contention B — that must be held in abeyance (without being admitted or denied). BREDL's seven other contentions are not admissible. We also conclude that neither BEST nor MATRR has established standing and therefore their requests for hearing are denied. Because no contentions are admitted but a portion of one is held in abeyance, we neither grant nor deny the hearing request with respect to BREDL.

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<sup>1</sup> Tennessee Valley Authority; Notice of Acceptance for Docketing of Application and Notice of Opportunity for Hearing Regarding Renewal of Sequoyah Nuclear Plant, Units 1 and 2, Facility Operating License Nos. DPR-77, DPR-79 for an Additional 20-Year Period, 78 Fed. Reg. 14,362, 14,363 (Mar. 5, 2013) [Notice].

<sup>2</sup> Petition for Leave to Intervene and Request for Hearing by the Blue Ridge Environmental Defense League, Bellefonte Efficiency and Sustainability Team, and Mothers Against Tennessee River Radiation (May 6, 2012).

## **I. PROCEDURAL BACKGROUND**

On January 7, 2013, TVA submitted its LRA for the renewal of the operating licenses for Sequoyah Units 1 and 2. 78 Fed. Reg. at 14,363. On March 5, 2013, the NRC published a notice in the *Federal Register* stating that any person whose interests may be affected by this proceeding, and who wishes to participate as a party, must file a petition for leave to intervene with the NRC within 60 days. 78 Fed. Reg. at 14,364. On May 6, 2013, Petitioners filed a petition, proffering eight contentions, denominated Contentions A through E and Contentions F-1, F-2, and F-3. *See Petition at 10-27.*

On May 31, 2013, TVA and the NRC Staff filed answers opposing the petition.<sup>3</sup> Although neither TVA nor the NRC Staff disputes BREDL's standing to intervene, both argue that BEST and MATRR lack standing. TVA Answer at 3 & n.2; NRC Answer at 5-6. TVA asserts that none of the contentions are admissible. TVA Answer at 1. The NRC Staff argues that seven of the contentions are inadmissible and that the eighth must be held in abeyance. NRC Answer at 1. On June 7, 2013, Petitioners filed their reply.<sup>4</sup>

NRC regulations state that a Board may grant a request for hearing and petition to intervene "if it determines that the requestor/petitioner has standing . . . and has proposed at least one admissible contention." 10 C.F.R. § 2.309(a). We examine below the issues of standing and contention admissibility.

## **II. STANDING**

### **A. Standards Governing Standing**

NRC regulations specify that, in order to demonstrate standing, a petitioner must provide information regarding (1) the nature of the petitioner's right under a relevant statute to be made a party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any decision or order that might be issued in the proceeding on the petitioner's interest. 10 C.F.R. § 2.309(d)(1)(ii)-(iv). But this is not enough. Although the regulations are silent on this point, the Commission has also stated that it will apply "contemporaneous judicial concepts" of standing before it will

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<sup>3</sup> [TVA]'s Answer Opposing the Petition for Leave to Intervene and Request for Hearing by [BREDL], et al. (May 31, 2013) [TVA Answer]; NRC Staff Answer to Petition for Leave to Intervene and Request for Hearing by [BREDL], [BEST], and [MATRR] (May 31, 2013) [NRC Answer].

<sup>4</sup> Reply of [BREDL], [BEST], and [MATRR] re: Petition for Leave to Intervene and Request for Hearing (June 7, 2013) [Reply].

allow a citizen to obtain a hearing.<sup>5</sup> Thus, the Commission also requires that a petitioner “demonstrate that (1) it has suffered a distinct and palpable harm that constitutes injury-in-fact within the zone of interests arguably protected by the governing statute; (2) that the injury can fairly be traced to the challenged action; and (3) that the injury is likely to be redressed by a favorable decision.”<sup>6</sup>

In applying these principles, the Commission has developed a “proximity presumption,” holding that if an individual resides within 50 miles of a nuclear power plant, then the petitioner is presumed to have standing. *Calvert Cliffs*, CLI-09-20, 70 NRC at 915-16. The proximity presumption applies to this license renewal proceeding.<sup>7</sup>

When, as here, the petitioner is an organization rather than an individual, it must demonstrate organizational or representational standing.

An organization may base its standing on either immediate or threatened injury to its organizational interests, or to the interests of identified members. . . . To derive standing from a member, the organization must demonstrate that the individual member has standing to participate, and has authorized the organization to represent his or her interests.

*Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111, 115 (1995) (internal citations omitted).

## B. Rulings on Standing

Neither TVA nor the NRC Staff disputes BREDL’s standing to intervene. TVA Answer at 3 n.2; NRC Answer at 5. In contrast, however, TVA and the NRC Staff both contend that neither BEST nor MATRR has established standing. TVA Answer at 3; NRC Answer at 5-6. We agree.

The petition is accompanied by declarations by sixteen individuals, each of whom states that he or she (a) lives within 50 miles of Sequoyah, (b) is a member of BREDL, and (c) authorizes BREDL to represent his or her interest in this proceeding.<sup>8</sup> By virtue of the proximity presumption, each of these individuals

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<sup>5</sup>See, e.g., *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 915 (2009) (quotation omitted).

<sup>6</sup>*Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-1, 43 NRC 1, 6 (1996).

<sup>7</sup>See *Calvert Cliffs 3*, CLI-09-20, 70 NRC at 915 n.15 (citing with approval *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-01-6, 53 NRC 138, 150 (2001), *aff’d on other grounds*, CLI-01-17, 54 NRC 3 (2001) (applying proximity presumption in reactor operating license renewal proceeding)).

<sup>8</sup>See, e.g., Declaration of Standing [of Heather Bradley] (Apr. 25, 2013); Declaration of Standing [of Emily Marr Davis] (Apr. 29, 2013); Declaration of Standing [of Phil Davis] (Apr. 29, 2013); Declaration of Standing [of Keith Goodall] (Apr. 29, 2013); Declaration of Standing [of Barbara A. Kelly] (Apr. 29, 2013).

would have standing to intervene in this proceeding in his or her own right. *Calvert Cliffs*, CLI-09-20, 70 NRC at 915 n.15. Based on these declarations, we conclude that BREDL has standing because it is the authorized representative of these individuals.<sup>9</sup>

As to BEST and MATRR, however, none of the declarations mention either of them. The petition and the reply inform us that BEST is a “chapter” of BREDL and that MATRR is a “project” of BREDL. Petition at 1; Reply at 1-2. But none of the individuals state that they are members of either the BEST chapter or the MATRR project. Although this failure was pointed out by both TVA and the NRC Staff, neither BEST nor MATRR attempted to cure this defect in the reply.<sup>10</sup>

Accordingly, neither BEST nor MATRR can successfully claim representational standing based on the interests of these sixteen BREDL members. BEST and MATRR appear to be subsets of BREDL. While membership in a subset (BEST or MATRR) indicates membership in the set (BREDL), the reverse is not true. That is, we cannot logically infer that any of the sixteen identified BREDL members are also members of either BEST or MATRR.<sup>11</sup>

Nor have BEST or MATRR attempted to demonstrate organizational standing by showing that the renewal of the licenses for Sequoyah Units 1 and 2 will injure either of their organizations. Neither has indicated, for example, that their corporate headquarters or physical facilities are located in close proximity to Sequoyah. Accordingly, we conclude that BEST and MATRR have failed to demonstrate standing, either representational or organizational.<sup>12</sup>

### III. STANDARDS GOVERNING CONTENTION ADMISSIBILITY

To intervene in a proceeding, a petitioner must put forward at least one admissible contention. 10 C.F.R. § 2.309(a). NRC regulations specify that, in

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<sup>9</sup>We note that BREDL has identified three additional members who live beyond 50 miles from Sequoyah. See Petition at 5. Because we have concluded that BREDL has representational standing arising from the proximity of those sixteen members living within 50 miles of Sequoyah, we need not consider whether these three individuals would have standing for other, non-proximity-related reasons.

<sup>10</sup>The Commission has held that a petitioner may use its reply to “cure the affidavits” used to establish standing. *South Carolina Electric & Gas Co.* (Virgil C. Summer Nuclear Station, Units 2 and 3), CLI-10-1, 71 NRC 1, 7 (2010).

<sup>11</sup>BEST has previously been deemed to lack standing in other proceedings for similar reasons. See *Tennessee Valley Authority* (Bellefonte Nuclear Plant, Units 1 and 2), LBP-10-7, 71 NRC 391, 413-14 (2010); *Tennessee Valley Authority* (Bellefonte Nuclear Plant, Units 3 and 4), LBP-08-16, 68 NRC 361, 379-80 (2008).

<sup>12</sup>Nor can we discern how either BEST or MATRR would be injured by failure to be granted standing, as their interests are represented through BREDL as subset members thereof.

order to be admissible, a contention must meet all of the following requirements: (i) provide a specific statement of the issue of law or fact to be raised; (ii) provide a brief explanation of the basis for the contention; (iii) demonstrate that the issue raised is within the scope of the proceeding; (iv) demonstrate that the issue raised is material to the findings the NRC must make to support the action that is involved in the proceeding; (v) provide a concise statement of the alleged facts or expert opinions that support the petitioner's position and upon which the petitioner intends to rely at hearing; and (vi) show that a genuine dispute exists on a material issue of law or fact. 10 C.F.R. § 2.309(f)(1)(i)-(vi).

The purpose of section 2.309(f)(1) is to "focus litigation on concrete issues and result in a clearer and more focused record for decision." Changes to Adjudicatory Process, 69 Fed. Reg. 2182, 2202 (Jan. 14, 2004). The Commission has stated that "the hearing process [is only intended for] issue[s] that [are] appropriate for, and susceptible to, resolution in an NRC hearing." *Id.* "While a board may view a petitioner's supporting information in a light favorable to the petitioner . . . the petitioner (not the board) [is required] to supply all of the required elements for a valid intervention petition."<sup>13</sup> The rules on contention admissibility are "strict by design."<sup>14</sup> If a contention fails to comply with any of these requirements, then it may not be admitted.<sup>15</sup>

## IV. ANALYSIS AND RULINGS ON CONTENTION ADMISSIBILITY

### A. Contention A

Contention A states:

TVA's LRA fails to adequately address the risks from flooding at Sequoyah which could result from the failure of upstream dams. The consequences of such an event on the plant would be severe.

Petition at 10.

#### 1. *Positions of the Parties*

In support of Contention A, BREDL states, with no reference to any supporting

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<sup>13</sup> *AmerGen Energy Co.* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 260 (2009).

<sup>14</sup> See, e.g., *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-08-17, 68 NRC 231, 233 (2008).

<sup>15</sup> *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-04-36, 60 NRC 631, 636 (2004).

documentation, that NRC recently issued “six citations to TVA and placed the plant under its ‘yellow’ safety flag.” *Id.* at 10-11. BREDL then quotes from what it asserts to be a March 12, 2013, NRC letter (not attached to the petition) regarding Sequoyah that, BREDL states, says: “the enclosed inspection report discusses . . . two Apparent Violations (AVs) associated with site flood mitigation strategy.” *Id.* at 11. BREDL recounts that, following the March 2011 accident at the Fukushima Dai-ichi nuclear power plant in Japan, the NRC required all power reactor licensees to ““develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and SFP [spent fuel pool] cooling capabilities following a beyond-design-basis external event.””<sup>16</sup> BREDL states, with no citation or documentation, that “TVA’s updated calculations showed flooding at Sequoyah could rise 2.4 feet higher than that plant was designed to handle.” *Id.* BREDL asserts that “TVA’s remedy [consists of] sand and gravel baskets placed on upstream riverbanks” and concludes that they are “stopgaps.” *Id.* BREDL alleges that “[m]ore substantial measures for TVA’s nuclear fleet would cost tens of millions of dollars, and flood-proof modifications could top a billion dollars.” *Id.* No citation, documentation, or support is provided for these allegations.

BREDL states that the “Fukushima meltdown was caused by a flood of water” and that “TVA has not implemented necessary precautions to prevent [a] similar disaster in the Tennessee Valley.” *Id.* at 12. BREDL quotes an NRC spokesman as stating that “[o]ur inspectors found that their [TVA’s] strategies were not adequate.” *Id.* (citing to a March 19, 2013 article in the *Chattanooga Times-Free Press*).

BREDL asserts that NRC regulations specify that an LRA must include an integrated plant assessment (IPA) that demonstrates that the “effects of aging” on plant “systems, structures, and components” “will be adequately managed so that the intended function(s) will be maintained consistent with the CLB [current licensing basis] for the period of extended operation,” citing to 10 C.F.R. § 54.21(a). *Id.* BREDL concludes by stating:

Under 10 C.F.R. § 54.30(a), if the reviews required by § 54.21(a) or (c) show that there is not reasonable assurance during the current licensing term that licensed activities will be conducted in accordance with the CLB, then the licensee shall take measures under its current license, as appropriate to ensure that the intended function of those systems, structures or components will be maintained in accordance with the CLB throughout the term of its current license.

*Id.*

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<sup>16</sup> *Id.* The source of BREDL’s quote is unclear, but the context indicates that it is derived from an unspecified page of NRC Order EA-12-049, “Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events,” issued on March 12, 2012.

Both TVA and the NRC Staff argue that Contention A is inadmissible. *See* TVA Answer at 13-18; NRC Answer at 19-24.

## **2. Analysis and Ruling on Contention A**

For the reasons discussed below, we hold that Contention A is inadmissible.

As a preliminary matter, we note that although Contention A asserts that the “LRA fails to adequately address the risk of flooding,” the contention does not indicate what legal requirement, if any, *requires* the LRA to address the risk of flooding. More specifically, Contention A does not specify whether it is the Atomic Energy Act and NRC’s regulations thereunder (10 C.F.R. Part 54), or the National Environmental Policy Act (NEPA) and NRC’s regulations thereunder (10 C.F.R. Part 51), that require the LRA to “address the risk of flooding.” Is Contention A a “safety” contention under AEA, an “environmental” contention under Part 51, or both?

The answer is important because the scope of the environmental review in a license renewal proceeding is different from the scope of the safety review, and different regulations and legal criteria apply. Thus, in order to assess the admissibility of a contention (e.g., whether it is within the scope of, and material to, the proceeding as required by 10 C.F.R. § 2.309(f)(1)(iii) and (iv)) we need to know the legal basis (safety or environmental) of the contention. But BREDL fails to suggest what legal criteria should be applied to evaluate whether the LRA’s discussion of flooding is “adequate.”

The discussion of Contention A in the petition and reply reveal that Contention A is a safety contention under the AEA and 10 C.F.R. Part 54. This is because, in the discussion of Contention A, BREDL never mentions NEPA or Part 51 and instead focuses entirely on Part 54. BREDL bases Contention A in large part on “six citations” the NRC issued to TVA, and the NRC’s placement of Sequoyah “under its ‘yellow’ safety flag.” Petition at 10-11. These alleged violations are safety/AEA issues, not environmental. The petition and reply rely entirely on NRC safety-related regulations in 10 C.F.R. §§ 54.21(a), 54.21(b), and 54.30(a). *See id.* at 12.

Having determined that Contention A is alleging a noncompliance with NRC’s Part 54 requirement, we turn to the issue of its admissibility, i.e., whether the contention satisfies the six requirements of 10 C.F.R. § 2.309(f)(1)(i)-(vi). The answer is clearly no.

At the outset, Contention A is inadmissible because it is not “within the scope of the proceeding” as required by 10 C.F.R. § 2.309(f)(1)(iii). The essence of Contention A is that TVA is not in compliance with its “current licensing basis

(CLB)”<sup>17</sup> and that 10 C.F.R. § 54.30(a) demands that it come into compliance with its CLB. Petition at 12. But the case law and the black letter of our regulations in 10 C.F.R. § 54.30(b) are plain that compliance with the CLB is not within the scope of a license renewal proceeding. “The licensee’s compliance with the obligation under Paragraph (a) of this section to take measures under its current license is *not within the scope* of the license renewal review.” 10 C.F.R. § 54.30(b) (emphasis added).

Section 54.30(b), combined with the requirement that contentions be within the scope of the license proceeding, 10 C.F.R. § 2.309(f)(1)(iii), are fatal to Contention A. TVA’s current compliance with the NRC’s safety requirements, as reflected in TVA’s CLB, is outside of the scope of Part 54 and therefore cannot form the basis of an admissible contention.

Even without BREDL’s citation to 10 C.F.R. § 54.30(a), it is apparent that Contention A, which deals with flooding, is a challenge based on TVA’s alleged noncompliance with its CLB. First, under the NRC regulations, the prevention and management of flooding is encompassed within the licensee’s CLB. The term “CLB” includes “the NRC regulations contained in 10 CFR part[] . . . 50 . . . and appendices thereto.” 10 C.F.R. § 54.3(a). Appendix A to Part 50 establishes “General Design Criteria for Nuclear Power Plants.” 10 C.F.R. Part 50, Appendix A. These include “General Design Criterion 2,” which states:

Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as . . . floods . . . without loss of capability to perform their safety functions.

*Id.*, General Design Criterion 2. In short, licensees are required to protect their nuclear power plants against the risk of flooding as a part of their current regulatory obligations under the AEA (i.e., as part of the CLB) and any challenge to the adequacy of the licensee’s flood management measures is not with the scope of the license renewal process.

The Commission’s decision in *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3 (2001) is the seminal ruling. In it, the Commission stated that it “has the ongoing responsibility to oversee the safety and security of operating nuclear reactors” and asserted that “the NRC maintains an aggressive and ongoing program to oversee plant operation” and to maintain compliance with the CLB. *Id.* at 8. In light of this “aggressive program” the Commission stated that “it would be unnecessary to include in our [license renewal] review all those issues already monitored, reviewed, and commonly resolved as needed by ongoing regulatory oversight.” *Id.*

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<sup>17</sup> NRC regulations define “current licensing basis” in 10 C.F.R. § 54.3(a).

In establishing its license renewal process, the Commission did not believe it necessary or appropriate to throw open the full gamut of provisions in a plant's current licensing basis to re-analysis during the license renewal review.

*Id.* at 9.<sup>18</sup>

Subsequently, the Commission has reversed several Boards that attempted to admit a contention alleging that a licensee's *current* compliance problems could be within the scope of Part 54, e.g., could possibly undermine the licensee's ability to manage aging during the license renewal period. For example, in *Prairie Island*, the Commission reversed the Board for admitting a contention charging that a licensee's poor safety culture could undermine its ability to manage aging during the period of extended operations.<sup>19</sup> The Commission ruled that such an issue is not within the scope of license renewal. *Id.*

Likewise, in *Diablo Canyon*, the Commission reversed a Board (Judge Abramson dissenting) that admitted a contention alleging that (a) the licensee had a repeated pattern of violations, (b) such a pattern could undermine the licensee's ability to manage aging during the period of extended operations, and therefore (c) the contention was within the scope of license renewal.<sup>20</sup> The Commission stated "license renewal should not include a new, broad-scoped inquiry into compliance that is separate from and parallel to our ongoing compliance oversight activity" and that the license renewal rule was "developed to exclude from review conceptual issues such as operational history, quality assurance, quality control, management competence, and human factors." *Diablo Canyon*, CLI-11-11, 74 NRC at 435 (internal quotations and citations omitted).

In its reply, BREDL makes a brief attempt to escape the strictures of 10 C.F.R. § 54.30(b) by asserting that Contention A addresses "factors beyond the current license term of 2021." Reply at 3-4. BREDL states "given the short amount of

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<sup>18</sup> If Contention A had been articulated as an environmental contention (e.g., TVA's environmental report failed to adequately address the reasonably foreseeable environmental impacts from flooding), then it would likely have been within the scope of this license renewal proceeding. The Commission has clearly stated that, in the context of license renewal, "[t]he Commission's AEA review under Part 54 does not compromise or limit NEPA." *Turkey Point*, CLI-01-17, 54 NRC at 13. Although the Part 54 review focuses on aging of a limited set of systems, structures, and components, rather than on the CLB, the NEPA review is not so restricted. Indeed, the Commission's Part 51 regulations dealing with license renewal never even mention the term "CLB." The Commission has ruled: "the two inquiries are analytically separate: one (Part 54) examines radiological health and safety, while the other (Part 51) examines environmental effects of all kinds. Our aging-based safety review does not in any sense 'restrict NEPA' or 'drastically narrow[ ] the scope of NEPA.'" *Id.* Contention A, however, focused entirely on Part 54 and never mentioned NEPA or Part 51.

<sup>19</sup> *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-10-27, 72 NRC 481, 484 (2010).

<sup>20</sup> *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC 427, 432 (2011).

time remaining within the current licensing term, the huge costs of remediation at [Sequoyah], and the problem multiplied by similar conditions at Watts Bar, can TVA correct this problem within eight years?" *Id.* at 4.

This argument is unavailing. First, as a legal matter, we find no support for the proposition that 10 C.F.R. § 54.30(b), which states that a "licensee's compliance with the obligation . . . to take measures [to comply with its CLB] is *not within* the scope of the license renewal review" (emphasis added), only applies to measures that will achieve compliance during the current licensing term. Stated otherwise, we do not read 10 C.F.R. § 54.30(b) as stating or implying that *if* compliance with the CLB *cannot* be fully achieved during the current licensing term (and must be consummated during the period of extended operation), *then* a contention raising issues about such CLB compliance is *within* the scope of license renewal. We know of no legal precedent to support such an interpretation of 10 C.F.R. § 54.30(b) and, if it was implied by BREDL, we reject it.

Second, even if BREDL's construction of the regulation were correct, Contention A would still fail because BREDL has failed to provide sufficient support for the factual predicate to this interpretation, i.e., that compliance with the CLB cannot be achieved before the current licenses expire because the flooding risk issues related to the Sequoyah plant are too expensive and difficult to cure by 2020 and 2021. We recognize that 10 C.F.R. § 2.309(f)(1)(v) requires only "alleged facts," and does not require that a contention be supported by evidence or by expert opinion. A contention need not be proven at the admissibility stage.<sup>21</sup> But this regulation also calls for the petitioner to provide "references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position." 10 C.F.R. § 2.309(f)(1)(v). Moreover, the very next section of our regulations reinforces this point by calling for the requestor/petitioner to "provide sufficient information" to show that a genuine dispute exists on a material issue of law or fact. 10 C.F.R. § 2.309(f)(1)(vi). BREDL provides nothing to satisfy these regulations, and bald allegations that it "could" cost TVA over a "billion dollars" to install "flood-proof modifications," Petition at 11, and bald questions, such as "can TVA correct this problem within eight years?" Reply at 4, do not suffice under 10 C.F.R. § 2.309(f)(1)(v) and (vi).<sup>22</sup>

For these reasons, we hold that Contention A is inadmissible.

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<sup>21</sup> See *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-04-22, 60 NRC 125, 139 (2004).

<sup>22</sup> See, e.g., *Union Electric Co.* (Callaway Plant, Unit 2), CLI-11-5, 74 NRC 141, 169 (2011); *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 359-60 (2001).

## **B. Contention B**

Contention B states:

NRC cannot grant the Sequoyah license renewal without conducting a thorough analysis of the risks of the long-term storage of irradiated nuclear fuel generated by Sequoyah Units 1 and 2.

Petition at 12.

### ***1. Positions of the Parties***

BREDL states that Contention B is based on *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012), the June 8, 2012 decision of the United States Court of Appeals for the District of Columbia Circuit that vacated portions of the NRC NEPA regulation that assessed the environmental impact of the storage and disposal of spent nuclear fuel generated by nuclear power reactors such as Sequoyah Units 1 and 2. Petition at 12-13. BREDL notes that *New York v. NRC* vacated NRC's "Waste Confidence Decision" (WCD) regulation and NRC's "Temporary Storage Rule" (TSR) regulation.<sup>23</sup> *Id.* at 13. BREDL asserts that these regulations provide part of the basis for the LRA "on issues regarding the safety and environmental impacts of irradiated reactor fuel storage and disposal." *Id.* BREDL asserts that, under *New York v. NRC*, the LRA no longer complies with the safety requirements of 10 C.F.R. Part 54 and that TVA's Environmental Report is insufficient because it can no longer rely on the WCD and TSR to cover the environmental impacts of the storage and disposal of the spent fuel that will be generated during the 20-year renewal term for Sequoyah Units 1 and 2. *Id.*

The NRC Staff takes the position that "consistent with the recent Commission decision in [*Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63 (2012)], [Contention B] should be held in abeyance pending further Commission order." NRC Answer at 25.

TVA asserts that Contention B is an inadmissible attack on an NRC regulation; it violates 10 C.F.R. § 2.335(a) which has, itself, never been vacated or overridden by the Commission. Therefore, TVA argues that the contention should be denied now. TVA Answer at 20-22. TVA never mentions the *Calvert Cliffs* order cited by the NRC Staff.

### ***2. Analysis and Ruling on Contention B***

For the reasons set forth below, we deny the safety portion of Contention B and

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<sup>23</sup> The TSR is the first sentence of 10 C.F.R. § 51.23(a) and the WCD is the second.

hold the environmental portion of Contention B in abeyance (without admitting or denying it) pending further direction from the Commission.

To the extent that Contention B asserts that *New York v. NRC* undermines or invalidates the safety portion of the LRA for Sequoyah, we reject it. *New York v. NRC* dealt solely with NEPA and environmental issues. *New York v. NRC* invalidated portions of NRC's NEPA regulations under 10 C.F.R. Part 51. That decision did not involve 10 C.F.R. Part 54 and it cannot provide support for the claim that TVA's safety analysis now fails to satisfy Part 54. The safety portion of Contention B is inadmissible under 10 C.F.R. § 2.309(f)(1)(ii), (v), and (vi).

Turning to the environmental portion of Contention B, we conclude that it is substantially similar to the petitions that were filed in twenty-two reactor licensing adjudications in the immediate aftermath of the decision in *New York v. NRC*. See *Calvert Cliffs*, CLI-12-16, 76 NRC 63. The Commission dealt clearly and specifically with those petitions. It directed “as an exercise of [its] inherent supervisory authority over NRC adjudications” that “these contentions — and any related contentions that may be filed in the near term — be held in abeyance pending our further order.” *Id.* at 68-69.

*Calvert Cliffs* is binding on this Board. Contention B is clearly a “related contention . . . filed in the near term.” In addition, we are unaware of any “further order” by the Commission that resolves the WCD or TSR situation.

Accordingly, we neither admit nor deny the environmental portion of Contention B but hold it in abeyance pending further order from the Commission.<sup>24</sup>

### C. Contention C

Contention C states:

License renewal regulations at § 54.21 require reasonable assurance during the license term that activities will be conducted in accordance with the CLB [current licensing basis], but four counties out of five within 50 miles of Sequoyah have higher cancer death rates than the state average.

Petition at 15.

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<sup>24</sup>On June 20, 2013, the NRC published in the *Federal Register* a final rule entitled Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses. 78 Fed. Reg. 37,282 (June 20, 2013). A number of these revisions bear on the WCD and the TSR. While they do not directly affect our decision on Contention B, we do note that the NRC states, “In accordance with CLI-12-16, the NRC will not approve any site-specific license renewal applications until the deficiencies identified in [*New York v. NRC*] have been resolved.” 78 Fed. Reg. at 37,293. This reiteration of the NRC’s policy of holding off on granting any reactor license renewal requests until WCD- and TSR-related issues are settled supports our decision to hold Contention B in abeyance.

### **1. Positions of the Parties**

Although the express language of Contention C refers to NRC safety regulations (10 C.F.R. § 54.21 and the requirement that there be “reasonable assurance” of a facility’s safety), the first sentence of BREDL’s explanation of this contention refers to TVA’s Environmental Report (ER). *Id.* at 14-15. Thus, it is unclear whether Contention C is a safety contention, an environmental contention, or both. BREDL certainly makes its arguments based upon environmental matters, noting that “the ER states that human health impacts from the license renewal would be ‘small.’” *Id.* at 15. BREDL challenges this conclusion, stating that “cancer statistics in *counties within 50 miles around Sequoyah* Nuclear Plant point to a relationship between cancer rates and [Sequoyah].” *Id.* (emphasis added). BREDL states that it is “focusing on *counties within the 50-mile zone* around Sequoyah — Hamilton, Bledsoe, Marion, Monroe and McMinn.” *Id.* (emphasis added). The petition includes a chart with the title “Cancer Statistics for *Counties within 50 miles of Sequoyah* in Tennessee.” *Id.* (emphasis added). The only counties on the chart are Hamilton, Bledsoe, Marion, Monroe, and McMinn. *Id.* Contention C states, in pertinent part, that “*four counties out of five within 50 miles of Sequoyah* have higher cancer rates than the state average.” *Id.* (emphasis added).

Based on the foregoing allegations, BREDL asks: “Is the observed fluctuation and general increase [in the cancer rate] caused by [Sequoyah]?” *Id.* at 16. BREDL does not attempt to answer this question but asserts that “[f]urther study is needed.” *Id.* BREDL argues that TVA’s ER is incorrect because BREDL asserts that its statistics “indicate the human health impact is not ‘small.’” *Id.* This casts the issue as an environmental contention. But, on the other hand, BREDL’s discussion of Contention C also asserts that if the licensee is not complying with its CLB, then 10 C.F.R. § 54.30(a) requires the licensee to take measures to restore and maintain such compliance. *Id.* This casts the issue as a safety contention.

Both TVA and the NRC Staff argue that Contention C is inadmissible. *See* TVA Answer at 22-26; NRC Answer at 26-32.

### **2. Analysis and Ruling on Contention C**

For the reasons discussed below, we conclude that Contention C is inadmissible.

As an initial matter (as we noted) it is unclear whether BREDL is arguing that its cancer statistics show that the LRA fails to comply with NRC’s safety regulations, or that the ER fails to comply with NRC’s environmental regulations, or both. Here again, the distinction makes a difference. For example, in license renewal proceedings, the scope of review for environmental contentions is different from the scope of review for safety contentions. *See supra* note 18. In addition, the

criteria and requirements under Part 54 are different from those under Part 51. Contention C is confusing, however, because although the *contention* refers to 10 C.F.R. § 54.21, the *text* of the petition focuses on the ER and asserts that the ER conclusion that the environmental impact is “small” is incorrect.

For purposes of our analysis, we will treat Contention C as both a safety contention and an environmental contention. From both perspectives, it is inadmissible.

If we assume that Contention C is a safety contention, then it is outside of the scope of the license renewal process under 10 C.F.R. § 54.30(b) and is therefore inadmissible under 10 C.F.R. § 2.309(f)(1)(iii). Contention C states, in pertinent part, that “License renewal regulations at § 54.21 require reasonable assurance during the license term that activities will be conducted in accordance with the CLB.” Petition at 14-15. BREDL then cites us to 10 C.F.R. § 54.30(a) which specifies that the licensee must take measures to restore and maintain compliance with the CLB. *Id.* at 16. Once again, BREDL fails to mention that 10 C.F.R. § 54.30(b) states that compliance with the CLB is “not within the scope of the license renewal review.” Thus, if Contention C is a safety contention, then it is inadmissible for the same reason that Contention A is inadmissible. It is not within the scope of this license renewal proceeding and thus fails to satisfy the requirements of 10 C.F.R. § 2.309(f)(1)(iii).

Considering the admissibility of Contention C as an environmental contention, the legal analysis is different, but the result is the same. Construed as an environmental contention the thrust of Contention C is that the ER erroneously concludes that the human health impacts of the license renewal would be “small.” As support for this contention, BREDL proffers a chart of “Cancer Statistics for Counties Within 50 Miles of Sequoyah in Tennessee” which displays data on five counties. BREDL asserts that this chart shows that “[f]or the five counties surrounding Sequoyah, the cancer death rate is much more variable” and that “four counties — Hamilton, Marion, Monroe and McMinn — have higher cancer death rates than the state average level.” *Id.* at 15-16.

This chart and the data on which it is allegedly based are highly problematic. BREDL has provided no information regarding the methodology used in developing these data. The chart does not indicate whether it is referring to cancer mortality or morbidity. BREDL mentions that the data were compiled by an intern, but there is no supporting affidavit or declaration from this person explaining how she prepared the chart and we have no curriculum vitae or other indicia of her qualifications as a data analyst or statistician. There is no attempt to identify the types of cancer that are covered by BREDL’s chart, or to distinguish between those types that may be associated with radiation exposure and those that are not. There is no allegation or showing that the data indicating higher cancer rates in the four counties is statistically significant.

And, more fundamentally, BREDL has failed even to allege that there is any

causal nexus between the operation of Sequoyah and the cancer data presented for the four counties in question. Indeed, BREDL's statement that “[f]urther study is needed” is essentially an admission that a causal link has not yet been demonstrated.

In addition, it cannot go unremarked that BREDL's statistics and assertions regarding the prevalence of cancer in the “counties within 50 miles of Sequoyah,” Petition at 14-15, appear to be highly misleading. BREDL repeatedly states that its data show that “four counties out of five within 50 miles of Sequoyah” have a higher incidence of cancer. *Id.* at 15. This statement plainly implies that there are only five counties within 50 miles of Sequoyah and four of them have a higher incidence of cancer than the Tennessee state average. However, the NRC Staff has alleged that there are fourteen counties wholly within 50 miles of Sequoyah. NRC Answer at 31 n.123 (“[T]here are, in fact, ten Tennessee counties and four Georgia counties within a 50 mile radius of the plant.”). The NRC Staff also asserts that there are seventeen additional counties that are at least *partially* within 50 miles of the Sequoyah plant. *Id.* Thus, the NRC Staff claims that there are a total of thirty-one counties wholly or partially within 50 miles of Sequoyah. Moreover, the five counties used by BREDL in its statistics are apparently not even the five counties closest to Sequoyah. *See* ER at 2-124.

Furthermore, the ER includes maps that indicate there are many more than five counties within a 50-mile radius of Sequoyah. *See id.* BREDL has not disputed the accuracy of these maps.

If this information is correct, then BREDL's repeated statements that “four counties out of five within 50 miles of Sequoyah have higher cancer death rates than the state average” are seriously misleading. BREDL's pleadings strongly imply that the five counties covered by BREDL's data are the only counties within a 50-mile radius of Sequoyah, when in fact they represent less than 25% of the relevant counties. A reasonable person reading BREDL's pleadings on this issue would certainly have been misled. We find this unacceptable.<sup>25</sup>

Turning back to the contention itself, even assuming *arguendo* the truth of BREDL's data concerning the higher cancer rates in Hamilton, Marion, Monroe, and McMinn counties, we conclude that Contention C, as an environmental contention, is inadmissible because it is based upon unsupported speculation that operation of Sequoyah *might* cause higher cancer rates. The Commission has made clear that contentions based on “bare assertions and speculation” will not be admitted. *See, e.g., Fansteel, Inc.* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195, 203 (2003). Therefore, Contention C is inadmissible for failing

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<sup>25</sup> We remind Mr. Zeller, who signed the Petition and is an experienced *pro se* representative in ASLBP proceedings, that, like all other representatives and/or lawyers herein, he is subject to the duties of 10 C.F.R. §§ 2.304(d) (truthfulness), 2.314(c) (reprimand/censure/suspension), and 2.323(d) (accuracy).

to satisfy the requirements of 10 C.F.R. § 2.309(f)(1)(v) to provide sufficient supporting information.

Furthermore, even if BREDL's claims regarding elevated cancer risk in the four counties are correct, and even if we assume (which we may not) a causal connection between these cancers and the operation of the Sequoyah plant, BREDL has not provided any support for its proposition that these rates are *not small*. The ER states that the impacts to human health are small. BREDL has not provided any report, reference, analysis, or expert testimony which supports the proposition that they are not. BREDL has not alleged that its data show a statistically significant increase in cancer. And although NRC's regulations specifically define the terms "small," "moderate," and "large" environmental impacts, *see* 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1, n.3, BREDL has not attempted to apply these definitions to Sequoyah, much less explain how its cancer data change the impact of Sequoyah from small to moderate or large. For example, BREDL has made no attempt to show that the radiological impacts from Sequoyah would "exceed permissible levels in the Commission's regulations" and thus would not qualify as "small."<sup>26</sup>

Contention C is simply not moored to any relevant NEPA regulation. Therefore, even if it were not inadmissible for its failure to satisfy 10 C.F.R. § 2.309(f)(1)(v), because BREDL has not explained the regulatory significance of its data or argument, Contention C would still be inadmissible for failing to present an issue that is material to the findings the NRC must make in this proceeding. 10 C.F.R. § 2.309(f)(1)(iv).

In sum, if Contention C is a safety contention, then it is not admissible under 10 C.F.R. § 2.309(f)(1)(iii), and if it is an environmental contention, then it is not admissible under 10 C.F.R. § 2.309(f)(1)(iv) and (v).

#### D. Contention D

Contention D states:

TVA's Integrated Plant Assessment ("IPA") for the LRA fails to identify and assess safety-related incidents at [Sequoyah] in its required time-limited aging analysis ("TLAA"). 10 CFR 54.21.

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<sup>26</sup> 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1, n.3. defines "small" impacts as follows:

For the issue, environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource. For the purposes of assessing radiological impacts, the Commission has concluded that those impacts that do not exceed permissible levels in the Commission's regulations are considered small as the term is used in this table.

Petition at 16.

### ***1. Positions of the Parties***

Contention D alleges that the LRA is inadequate because the time-limited aging analysis (TLAA) in the application did not discuss a number of safety-related incidents that have allegedly occurred at Sequoyah over the last 14 years. *Id.* at 17. BREDL asserts, with no citation, documentation, or other support, that during the last 14 years, “Sequoyah’s quarterly incident reports indicate an average of 7.14 safety-related findings per annum . . . but for the last six to eight years the trend . . . indicates increasing levels of safety-related incidents.” *Id.* Again without supporting information, BREDL alleges and discusses a 1999 incident, a 2000 incident, a 2001 incident, and a 2004 incident. *Id.* at 17-18. BREDL asserts that these incidents are “things that could cause unimaginable destruction.” *Id.* at 18. BREDL concludes that “[t]he failures to detect problems, to prepare for storms and to maintain security are shortcomings of TVA management,” *id.*, and therefore that TVA has failed to demonstrate that the effects of aging will be adequately managed during the renewal period, as required by 10 C.F.R. § 54.21(c)(iii). *Id.*

Both TVA and the NRC Staff argue that Contention D is inadmissible. *See* TVA Answer at 26-33; NRC Answer at 32-37.

### ***2. Analysis and Ruling on Contention D***

For the reasons discussed below, we conclude that Contention D, which raises issues concerning TVA’s compliance with its CLB and is a safety contention, is not admissible.<sup>27</sup>

As discussed with regard to Contention A, above, the Commission has recently rejected contentions similar to Contention D in the *Prairie Island* and *Diablo Canyon* license renewal proceedings. *Prairie Island*, CLI-10-27, 72 NRC 481; *Diablo Canyon*, CLI-11-11, 74 NRC 427. The petitioners in both of those proceedings proffered contentions alleging that the applicants’ handling of past safety issues at the plants demonstrated that the applicants could not provide reasonable assurance that they would manage the effects of aging during the license renewal term, as required by NRC regulations. *Prairie Island*, CLI-10-27, 72 NRC at 484; *Diablo Canyon*, CLI-11-11, 74 NRC at 432. In both cases the boards admitted these contentions and the Commission reversed them, ruling that the contentions raised CLB issues that were outside of the scope of license

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<sup>27</sup>Neither the Petition nor the Reply attempts to raise environmental issues with regard to Contention D.

renewal and therefore inadmissible under 10 C.F.R. § 2.309(f)(1)(iii). *Prairie Island*, CLI-10-27, 72 NRC at 490-92; *Diablo Canyon*, CLI-11-11, 74 NRC at 435-36. The Commission’s holdings in these two proceedings are dispositive here. Contention D is inadmissible for failure to satisfy the requirements of 10 C.F.R. § 2.309(f)(1)(iii).

In addition, while BREDL argues that TVA must “identify and assess safety-related incidents,” it does not identify the regulation that supposedly requires such information to be included in a license renewal application. BREDL notes that 10 C.F.R. § 54.21(c)(iii) requires an applicant to demonstrate that “[t]he effects of aging on the intended function(s) will be adequately managed for the period of extended operation.” Petition at 18. But section 54.21 nowhere requires an applicant to identify safety-related incidents that have occurred during the current licensing term. Section 54.21 “requires applicants to list structures and components subject to an aging management review.” 10 C.F.R. § 54.21(a)(1). It does not require license renewal applicants to identify safety-related incidents in their applications. Thus, BREDL’s assertion that TVA failed to provide such information is not material to the findings the NRC must make to approve the license request. Contention D, cast in this way, is inadmissible for its failure to satisfy the requirements of 10 C.F.R. § 2.309(f)(1)(iv).

## E. Contention E

Contention E states:

The LRA fails to consider Plutonium fuel use at [Sequoyah] which would place it outside the current licensing basis.

Petition at 18.

### *1. Positions of the Parties*

BREDL states that the Sequoyah Units 1 and 2 are “under consideration for plutonium fuel.” *Id.* BREDL states that TVA is a “cooperating agency” with the U.S. Department of Energy in the preparation of the DOE Final Surplus Plutonium Disposition Supplemental Environmental Impact Statement (DOE SEIS), and that this makes “Sequoyah central to the plutonium fuel program.” *Id.* at 18-19. BREDL asserts that the DOE SEIS lists two TVA nuclear power plants, Sequoyah and Browns Ferry, as potential users of reactor fuel containing plutonium (sometimes referred to as “mixed-oxide” or “MOX” fuel). *Id.* at 19. BREDL claims that “plutonium is fundamentally different from uranium. With plutonium fuel loaded into any commercial reactor, the power station becomes more dangerous.” *Id.*

Both TVA and the NRC Staff argue that Contention E is not admissible. *See* TVA Answer at 33-36; NRC Answer at 37-39.

## **2. Analysis and Ruling on Contention E**

For the reasons discussed below, we conclude that Contention E is inadmissible.

BREDL has provided no link between anything in the LRA and its naked claim that mixed-oxide (MOX) fuel (containing oxides of both plutonium and uranium) is more dangerous than the uranium fuel TVA currently uses at Sequoyah. BREDL has also not alleged or provided any information that indicates an intent by TVA to seek to use MOX fuel during the license renewal term. The Commission rejected an almost identical contention in the *McGuire/Catawba* license renewal proceeding, where BREDL itself was a petitioner.<sup>28</sup> In *McGuire/Catawba*, a petitioner proffered two contentions alleging that the applicant did not discuss the impacts of using MOX fuel, and that use of such fuel would be unsafe. CLI-02-14, 55 NRC at 291. As here, however, the applicant had not sought to obtain NRC approval to use MOX fuel. *Id.* at 292. The Commission held that “[n]othing in our case law or regulations suggests that license renewal is an occasion for far-reaching speculation about unimplemented and uncertain plans like [the applicant’s] MOX plan.” *Id.* at 293. The Commission noted that this sort of “inquiry into future, inchoate plans of the Licensee would, as a general matter, invite petitioners in license renewal cases to raise safety issues involving a myriad of possible future license amendments.” *Id.* at 292.

This Commission precedent is dispositive of Contention E. As in *McGuire/Catawba*, BREDL is seeking to litigate the merits of a plan that TVA has not yet adopted and may never adopt. As TVA concedes (and as the Commission noted in *McGuire/Catawba* with respect to those plants), if TVA does endeavor to use MOX fuel during the license renewal term, it will need to seek a license amendment. TVA Answer at 34; *McGuire/Catawba*, CLI-02-14, 55 NRC at 293. At that point, BREDL, and any other interested entity, may seek to raise challenges regarding the use of MOX fuel. At this point, however, Contention E is inadmissible because it fails to raise a genuine dispute with TVA’s current application as required by 10 C.F.R. § 2.309(f)(1)(vi).

## **F. Contention F — Introductory Statement and Three Subparts**

Contention F starts with an introductory assertion:

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<sup>28</sup> *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278 (2002).

The aging management programs associated with TVA’s Sequoyah ice condenser systems are insufficient to assure safe operations and prevent design-basis and severe accidents.

Petition at 21.

The petition then raises three “Containment Contention” subparts: “Containment Contention F-1: Aging Management Plans Lacking,” *id.*; “Containment Contention F-2: Severe Accident Mitigation Analysis Lacking,” *id.* at 23; and “Containment Contention F-3: Accuracy of Information Is Compromised.” *Id.* at 25. BREDL provides a declaration from Arnold Gundersen to support each of the three subparts.<sup>29</sup>

Before launching into the three subparts, the introductory statement is followed by references to both safety and environmental regulations. First, BREDL cites to NRC safety regulations and states that “aging management and time-limited aging management programs of numerous Ice Condenser systems and components are required to comply with 10 C.F.R. § 54.4, 10 C.F.R. § 54.21(a)(1) and 10 C.F.R. § 54.21(a)(3) in order to insure safe operations and prevent design basis and severe accidents.” *Id.* at 21. Next, BREDL points to NRC’s NEPA regulations, stating that “10 C.F.R. § 51.53(c)(3)(ii)(L) requires ‘consideration of alternatives to mitigate severe accidents.’” *Id.* BREDL then states that “[i]n short, the [Sequoyah] Units 1 and 2 ice-condenser nuclear power plant containment systems are the most vulnerable to loss of containment accidents.” *Id.* The introductory statement then refers to “[t]he following three related contentions” and notes that they are supported by the Gundersen Declaration.

The Board concludes that the introductory statement for “Contention F” does not constitute a separate contention, but instead serves as a preface that applies to each of the three “Containment Contention” subparts — Contentions F-1, F-2, and F-3.

#### **G. Containment Contention F-1: Aging Management Plans Lacking**

Contention F-1 reads:

TVA license extension application for the Sequoyah reactors’ ice condenser containments lacks acceptable aging management plans to adequately maintain critical components of the ice condenser containment for 20 years of additional operation.

*Id.*

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<sup>29</sup> Expert Witness Report of Arnold Gundersen to Support the Petition for Leave to Intervene and Request for Hearing by [BREDL], [BEST], and [MATRR] (May 6, 2013) [Gundersen Declaration].

### **1. Positions of the Parties**

BREDL supports Contention F-1 by asserting that “NRC is clearly aware of the existing design flaws and inspection failures at Ice Condenser (‘IC’) containment nuclear power plants,” *id.* at 21-22, and that “[f]or more than 15 years, the industry has known that Aging Management Programs (‘AMP’) on IC containments are inadequate.” *Id.* at 22. BREDL quotes from a Sandia National Laboratories Report entitled “Analyses of Containment Structures with Corrosion Damage” as follows: “In actual containments, the region around the ice basket has a high potential for corrosion, but the status is unknown because the area is inaccessible for inspections.” *Id.* BREDL states, “Given the critical safety importance of single-failure proof operation of the Sequoyah IC containment coupled with the long history of IC containment design flaws and failures, the Sequoyah Aging Management Plan *should have specific* action plans in place to address these aforementioned . . . flaws.” *Id.* (emphasis added).

BREDL concludes that since TVA has not provided any “Sequoyah-specific” AMPs addressing ice condenser containment issues the “NRC must reject TVA’s requested license extension.” *Id.* at 23.

TVA argues that Contention F-1 is inadmissible under 10 C.F.R. § 2.309(f)(1)(vi) because it fails to challenge the AMPs in the LRA. TVA Answer at 36. “Nowhere in Contention F-1 or in the Gundersen Declaration . . . is there a single reference to the relevant AMPs identified in the LRA, let alone any discussion why these AMPs are inadequate.” *Id.* TVA recognizes that the contention focuses on “potential corrosion of the steel containment vessel (‘SCV’) in the region of the ice baskets where the interior of the SCV is inaccessible.” *Id.* TVA asserts that “Consistent with the NRC’s Generic Aging Lessons Learned (GALL) Report, the LRA identifies two AMPs that manage this potential aging effect: [1] the Containment Inservice Inspection — IWE Program and [2] the Containment Leak Rate [AMP].” *Id.* at 37.

TVA describes each of these AMPs as follows. TVA says that the LRA’s “Containment Inservice Inspection — IWE Program [AMP] implements the requirements of 10 C.F.R. § 50.55a” and states that “NRC rules incorporating IWE contain additional requirements for inaccessible areas (10 C.F.R. § 50.55a(b)(2)(ix)), and these requirements are included in the AMP.” *Id.* TVA describes these additional measures. *Id.* at 37-38. For example, TVA maintains that the Containment Inservice Inspection — IWE AMP requires TVA:

to evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas. In addition, moisture barriers are examined for wear, damage, erosion, tear,

surface cracks, or other defects that permit intrusion of moisture in the inaccessible areas of the pressure retaining surfaces of the metal containment shell or liner.<sup>30</sup>

TVA states that its Containment Leak Rate AMP also addresses the ice condenser problem raised by BREDL. *Id.* at 38. TVA asserts that this AMP “consists of tests performed in accordance with the program requirements provided in 10 C.F.R. Part 50, Appendix J, Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors, Option B” and the GALL guidance. *Id.* TVA says that the “LRA concludes that continued monitoring of the SCV for loss of material through these two AMPS provides reasonable assurance that loss of material in inaccessible areas of the SCV is insignificant and will be detected prior to a loss of an intended function” citing the LRA § 3.5.2.2.1.3. *Id.* TVA concludes that neither Contention F-1 nor the Gunderson Declaration challenges this LRA conclusion and neither of them even mentions or discusses the two AMPs in question. *Id.* at 38-39.

TVA disputes BREDL’s characterization of the Sandia Report. *Id.* at 42. TVA says that Contention F-1 and the Gunderson Declaration characterize the Sandia Report as “demonstrating a class-wide problem with corrosion of the steel containment in the vicinity of the ice basket that is ‘known to have already occurred and postulated to occur in the future.’” *Id.* (citing Petition at 22-23 and Gunderson Declaration ¶¶ 17-19). TVA rejoins that the “Sandia Report says nothing of the sort.” *Id.* at 42-43. TVA says that the Sandia Report merely discusses the “potential” for localized corrosion at the ice basket region . . . not that corrosion at the ice basket region has been observed or will occur.” *Id.* at 43. TVA states that the Sandia Report does “not refer to observed or predicted corrosion at Sequoyah or another plant, but to corrosion locations conservatively assumed for the purpose of finite element analysis performed for the hypothetical, ‘typical’ ice condenser containment.” *Id.*

The NRC Staff agrees with TVA that Contention F-1 is not admissible. NRC Answer at 43. The Staff notes that the TVA LRA “devotes a significant portion of its discussion to ice condenser components and containment” and discusses their AMPs “in depth.” *Id.* at 46. The Staff lists many of the ice condenser components that, it says, are addressed in the LRA and discusses the LRA AMPs for each of these components. *Id.* at 46-47. Given this “extensive discussion of the AMPs readily available for BREDL’s review” combined with BREDL’s assertion that “no AMPs exist,” the Staff concludes that BREDL’s position is “insupportable and erroneous.” *Id.* at 47. The Staff asserts that “Commission precedent demands

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<sup>30</sup> TVA Answer at 37-38 (citing the NRC Office of Nuclear Reactor Regulation Generic Aging Lessons Learned (GALL) Report, NUREG 1801, at XI S1-2 to -3 (Rev. 2, Dec. 2010) [GALL Report]).

more from intervenors” and that they “must identify the portion of the license renewal application with respect to which they have a material dispute.” *Id.*

In its reply, BREDL states that the “crux of the problem is an area ‘inaccessible for inspection’ around the ice baskets, where there is high potential for corrosion” of the containment structure. Reply at 7. BREDL challenges the adequacy of the LRA’s Containment Inservice Inspection — IWE AMP stating that it exempts inaccessible portions of the containment vessel from examination and that the Sandia Report shows that the inaccessible area “is the area of highest strains.” *Id.* at 8. BREDL maintains that this region of the SVC “suffers a triple whammy: it is susceptible to corrosion, does not get inspected, yet is subject to the greatest strain” and dismisses the LRA as simply making “conclusory assertions that corrosion in the inaccessible areas is insignificant and will be detected before it is too late.” *Id.*

## **2. Analysis and Ruling on Contention F-1**

Contention F-1 is inadmissible.<sup>31</sup> Contention F-1 alleges that the LRA “lacks acceptable aging management plans to adequately maintain critical components of the ice condenser containment for 20 years of additional operation.” Petition at 21. But this contention fails to acknowledge that the LRA contains several AMPs designed to manage ice condenser containment issues, much less to set forth any arguments why these AMPs are inadequate. Moreover, BREDL provides no legal or factual support for its claim that TVA must have a “Sequoyah-specific” AMP. *Id.* at 23.

TVA and the NRC Staff maintain, and we agree, that Contention F-1 fails to comply with the regulation that requires that contentions “provide sufficient information to show that a genuine dispute exists . . . on a material issue of law or fact” and that “[t]his information must include references to specific portions of the application . . . that the petitioner disputes and the supporting reasons for each dispute.” 10 C.F.R. § 2.309(f)(1)(vi). We need not venture into the merits of Contention F-1 to see that the LRA contains many provisions that purport to address and to resolve the aging management issues raised by BREDL and to see that BREDL fails to confront these provisions. Nor do we know of any law that supports the BREDL assertion that the AMPs based on the GALL Report are automatically inadequate and thus that TVA must submit a “Sequoyah-specific” AMP on this topic.

In addition, we conclude that BREDL has mischaracterized the Sandia Re-

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<sup>31</sup> We deem Contention F-1 to be a safety contention arising under the AEA and 10 C.F.R. Part 50 and 54. These are the only regulations cited by BREDL in its discussion of Contention F-1. Neither NEPA nor Part 51 is mentioned.

port. The information before us indicates that this report merely discusses the theoretical potential for localized corrosion in the inaccessible region behind the ice condensers. It neither states nor provides any data or experimental evidence supporting the proposition that such corrosion has been observed or will occur. *See* TVA Answer at 42-43. Moreover, the information before us advises that the AMPs in the LRA are based on the GALL Report and were developed *after* the Sandia Report was issued. If there is something inadequate about those AMPs, it was incumbent upon BREDL to have mounted and supported a direct and specific challenge. Simply demanding that TVA develop a “Sequoyah-specific” AMP cannot satisfy this requirement. There is no support from BREDL for the proposition that use of the GALL Report-based AMPs is insufficient here.

For the reasons set forth in detail by TVA and the NRC Staff, which we adopt, Contention F-1 fails to satisfy 10 C.F.R. § 2.309(f)(1)(vi) and therefore is not admissible.

#### **H. Containment Contention F-2 — Severe Accident Mitigation Analysis Lacking**

Contention F-2 states:

NRC must reject TVA’s application for a license extension at the Sequoyah [nuclear power plant] due to the lack of supporting documentation providing the analysis detailing TVA’s assumptions that prove that indeed the Sequoyah IC containment can withstand severe accidents without leaking.

Petition at 23.

##### ***I. Positions of the Parties***

BREDL claims that TVA’s application “states that [the Sequoyah] containment is specifically able to withstand *severe accident forces*” without leaking. *Id.* at 24 (emphasis in original). This, in turn, leads BREDL to claim that “NRC must reject TVA’s application . . . because it fails to provide any documentation or analysis regarding [TVA’s] assumption that the Sequoyah IC Containment can withstand ‘severe accidents’ without leaking.” *Id.* at 24-25. BREDL asserts that “a Severe Accident Mitigation Analysis (SAMA) [sic] must include details with the exact sequences of events proving that the [Sequoyah] Ice Condenser containment will withstand a severe accident without leaking any radiation,” and that TVA’s LRA lacks such an analysis. *Id.* at 25.

Both TVA and the NRC Staff oppose admission of Contention F-2. *See* TVA Answer at 48-52; NRC Answer at 48-55.

## **2. Analysis and Ruling on Contention F-2**

We find that Contention F-2 is inadmissible for each of a number of reasons, discussed below.

First, we note that Contention F-2 is an environmental contention. BREDL is alleging inadequacies in TVA's Severe Accident Mitigation Alternatives (SAMA) analysis, which is part of TVA's Environmental Report (ER). Indeed, as the Commission has noted, “[t]he SAMA analysis is not part of the agency’s safety review for license renewal under the Atomic Energy Act (AEA), but is instead a mitigation alternatives analysis conducted pursuant to the National Environmental Policy Act (NEPA).”<sup>32</sup>

BREDL's argument appears to be based on a mischaracterization of TVA's application. BREDL argues that TVA's application claims that the Sequoyah containment can sustain a severe accident without leaking. Petition at 24. But it is plain that TVA does *not* make such a claim in its application.

The relevant language appears in the ER: “The reactor containment is designed to *adequately* retain these fission products under the most severe accident conditions.” ER at 3-2 (emphasis added). BREDL claims that this language implies that the containment will never leak. And while this interpretation might appear to be reasonable if the sentence were taken alone and out of context, it is clear to us that the true meaning is that, as TVA states, “the containment is designed to retain fission products under ‘the most severe’ accident conditions *for which it is designed*.” TVA Answer at 50 (emphasis added). As TVA points out, this sentence is immediately followed by a citation to section 1.2.2.2 of TVA's Updated Final Safety Analysis Report (UFSAR). *Id.* at 51. That section of the UFSAR states, “[t]he reactor containment is designed to adequately retain these fission products under the most severe accident conditions, *as analyzed in Chapter 15*.<sup>33</sup> The modifying phrase “as analyzed in Chapter 15” establishes and qualifies the substantive meaning of the preceding language. Chapter 15, in turn, is titled “Accident Analyses” and contains TVA's analyses of the consequences of *design-basis events*, not of severe accidents. And — to put this in context — events characterized as “severe accidents” from the SAMA analysis perspective

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<sup>32</sup> *Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station)*, CLI-12-15, 75 NRC 704, 706 (2012).

<sup>33</sup> UFSAR § 1.2.2.2 (emphasis added). A copy of the Sequoyah UFSAR is available at the NRC Public Document Room. Documents may be examined, and/or copied for a fee, at the NRC's PDR, located at One White Flint North, Public File Area 01 F21, 11555 Rockville Pike (first floor), Rockville, Maryland, or you can contact the NRC PDR Reference staff by telephone at 1-800-397-4209 or 301-415-4737, or send an e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov).

are, per se, *not* design-basis accidents.<sup>34</sup> TVA's statement at issue dealt with severe design-basis accidents, and not with the beyond-design-basis accidents that are covered in a SAMA analysis.

BREDL's misapprehension (or mischaracterization) of the statement in the ER cannot, and does not, serve to bootstrap its claim into a genuine dispute with the application. TVA's reference to "the most severe accident conditions, as analyzed in Chapter 15" is a reference to the most severe design-basis accidents, not to severe accidents generally. Making no reference to Chapter 15, let alone demonstrating where in Chapter 15 TVA makes the claim that Sequoyah's containment will retain all fission products during a severe accident, BREDL fails to satisfy the requirements of 10 C.F.R. § 2.309(f)(1)(vi).

In addition, as the NRC Staff points out, the UFSAR elsewhere states as follows:

The preoperational integrated leak tests at peak pressure and at reduced pressure verify that the containment, including the isolation valves and the resilient penetration seals, leaks less than the allowable value of 0.25 weight percent per day at peak pressure.

NRC Staff Answer at 53 (citing UFSAR at 3.1-28).

In simpler terms, the UFSAR states that some nominal amount of leakage from the containment is allowed. This further supports the interpretation, if it were not the plain meaning of the language in question, that TVA is not claiming that Sequoyah's containment is completely leakproof under severe accident conditions. Contention F-2 is simply rooted in a mischaracterization of TVA's application; BREDL has not put forward a genuine dispute with the application, as required by 10 C.F.R. § 2.309(f)(1)(vi), and Contention F-2 is thus inadmissible.

Moreover, BREDL seems to be laboring under the erroneous assumption that a license renewal applicant must demonstrate that the containment will not leak following a severe accident. But BREDL fails to refer us to any regulatory provisions that support this assumption, and indeed, NRC regulations contain no such requirement. Rather, as TVA notes, NRC regulations require "containments to remain 'essentially leaktight' during 'postulated accidents' —

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<sup>34</sup> See, e.g., Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants, 50 Fed. Reg. 32,138, 32,138-39 (Aug. 8, 1985) (defining severe nuclear accidents as "those in which substantial damage is done to the reactor core whether or not there are serious offsite consequences," and noting that "accidents of this class . . . are beyond the substantial coverage of design basis events").

i.e., those design-basis events analyzed in the FSAR.”<sup>35</sup> Severe accidents include accidents *beyond* these “postulated accidents.” *See supra* at note 34. So, because TVA has no burden under NRC regulations to demonstrate that its containment will not leak during severe accidents,<sup>36</sup> BREDL’s claim that TVA has not made such a demonstration is simply not material to the findings the NRC must make in its review of this license application. Contention F-2 therefore fails to satisfy 10 C.F.R. § 2.309(f)(1)(iv) and is inadmissible.

## **I. Containment Contention F-3 — Accuracy of Information Is Compromised**

Contention F-3 states:

TVA’s long standing breakdown in dealing with the mismanagement of its whistleblower complaints is a reflection of the corporation’s lack of integrity and insufficient adherence to regulatory statutes that demand nuclear power owners put safety first. Given these ongoing systemic problems the accuracy and validity of the license renewal application cannot be assured and therefore must be rejected.

Petition at 25.

### ***1. Positions of the Parties***

The central thrust of Contention F-3 is that TVA has a “longstanding breakdown in dealing with the mismanagement of its whistleblower complaints” that reflects “the corporation’s lack of integrity” and therefore that the LRA must be rejected because its “accuracy and validity . . . cannot be assured.” *Id.* BREDL asserts, without supporting citations or documentation, that there are a “rising number of allegations at Sequoyah coinciding with the 2012 replacement of steam generators.” *Id.* BREDL states, again without support, that “TVA whistleblower concerns have spanned more than 10 years, and are continuing to occur as recently as May 2013.” *Id.* at 26. BREDL cites, as an illustrative example, to a 2001 advocacy letter from a lawyer representing a “Mr. Overall” which alleges he was harassed in 1998 at TVA’s Watts Bar nuclear power plant. *Id.* BREDL then

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<sup>35</sup> TVA Answer at 49 (citing *Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit 2), CLI-81-12, 13 NRC 838, 844 (1981)).

<sup>36</sup> Indeed, the basic premise of a SAMA analysis is to assume (a) that a beyond-design-basis accident occurs and (b) that a release occurs, i.e., that the containment fails to contain all of the radioactive products. Based on those hypothetical conditions, the SAMA analysis identifies and evaluates alternative designs that could serve to reduce the likelihood and/or mitigate the consequences of such a release.

states that “the latest incident occurred just days ago,” citing to an article in the *Washington Post*.<sup>37</sup> BREDL concludes that “TVA’s Sequoyah has [a] decade-long history of whistleblower complaints and safety concerns, and three TVA nuclear reactor sites top the US list for the most whistleblower complaints. TVA personnel have been harassed and intimidated for bringing forward legitimate safety and public health concerns.” *Id.* at 27.

Both TVA and the NRC Staff contend that Contention F-3 is inadmissible. TVA Answer at 52-57; NRC Answer at 55-64.

## **2. Analysis and Ruling on Contention F-3**

Contention F-3 is inadmissible for the reasons discussed below.

First, we note that Contention F-3 appears to be a safety contention. While BREDL does not cite to any safety-related or environmental-related regulations, the heart of this contention is the assertion that Sequoyah will not be safely operated during the renewal term because TVA’s “mismanagement” of whistleblowers and “lack of management integrity” mean that the LRA cannot be trusted.

Turning to the admissibility of Contention F-3, our analyses of Contentions A and D apply equally here. BREDL is essentially alleging that TVA’s history of managing whistleblower complaints regarding safety issues at Sequoyah demonstrates that Sequoyah will not be operated safely during the license renewal term. As noted *supra* section IV.A.2, the Commission has recently rejected similar contentions. *See Prairie Island*, CLI-10-27, 72 NRC 481; *Diablo Canyon*, CLI-11-11, 74 NRC 427. For the same reasons that we found these *Prairie Island* and *Diablo Canyon* decisions dispositive of Contentions A and D, we conclude that they are dispositive of Contention F-3 as well.

TVA’s alleged history of mismanaging whistleblower complaints is precisely the sort of issue the NRC handles on an ongoing basis during the current licensing period that the Commission sought to exclude from review in license renewal proceedings. *Diablo Canyon*, CLI-11-11, 74 NRC at 435; *Prairie Island*, CLI-10-27, 72 NRC at 491.

As in the *Diablo Canyon* proceeding, BREDL “offers no explanation how its assertions are directly relevant to [the applicant’s] ability to manage the effects of aging during the renewal term.” *Diablo Canyon*, CLI-11-11, 74 NRC at 436. As noted above, BREDL claims that “[d]iscrimination and retaliation against nuclear whistleblowers is detrimental to the safe operation of any nuclear power plant.” Petition at 25.

An allegation regarding whistleblower retaliation is a serious matter. But even if it were within the scope of a license renewal proceeding, BREDL has provided

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<sup>37</sup> *Id.* A review of the article reveals no current allegation of a harassment or whistleblowing incident.

no support or documentation for the proposition that whistleblower retaliation has occurred at TVA’s Sequoyah plant during the last 10 years.

In addition, as in the *Prairie Island* proceeding, Contention F-3 “seems fundamentally a concern that relates to current operations at the plant, as opposed to how it might operate during the period of extended operation.” *Prairie Island*, CLI-10-27, 72 NRC at 492. Indeed, BREDL refers to its allegation regarding whistleblower retaliation as an “ongoing safety concern.” Petition at 26. BREDL is essentially asserting that Sequoyah is unsafe now, and therefore will be in the future as well. As the Commission noted, “if a stakeholder is of the view that immediate action is needed to remedy an ailing safety culture . . . at any facility, then that matter should be brought immediately to the attention of the agency via section 2.206.” *Prairie Island*, CLI-10-27, 72 NRC at 492. Such concerns about current operations are outside the scope of license renewal, and we therefore conclude that Contention F-3 is inadmissible. 10 C.F.R. § 2.309(f)(1)(iii).

Finally, we reject BREDL’s aspersions on the “management integrity” of TVA. As *Diablo Canyon* illustrates, management integrity contentions are generally not within the scope of a license renewal proceeding for a nuclear power plant (i.e., under Part 54). Even in a license renewal proceeding for a research reactor (i.e., not under Part 54), the Commission only affirmed the admission of a management integrity contention by relying on “specific supporting information, including references to a serious incident involving the shutdown of the reactor, the fact that the management responsible for the incident remained in place, a purported climate of reprisals for bringing forward safety issues and significantly, a reference to at least one expert in support of the contention.” *Diablo Canyon*, CLI-11-11, 74 NRC at 436 n.47. There is no allegation here, for example, (a) that the current management of TVA’s Sequoyah plant is harassing whistleblowers and (b) that this management will remain in place during the period of extended operation. And, although Contention F-3 is supported by the declaration of Mr. Gundersen, all he does is cite to the same 2001 lawyer letter (alleging 1998 harassment at Watts Bar) and the same *Washington Post* article discussed above. This is not enough. Like the intervenors in *Diablo Canyon*, BREDL has provided no meaningful support for the claim that its concerns are linked to TVA’s ability to manage the effects of aging during the period of extended operation.

#### **J. Miscellaneous Claims Common to Multiple Contentions**

In addition to the eight contentions, BREDL has put forward a number of claims that it states are “common to multiple contentions.” Petition at 7-9. It is not clear what purpose these claims are intended to serve, as they are separate from the contentions themselves. Despite this confusion, we analyze these claims and find them lacking for the reasons discussed below.

First, BREDL argues that “NRC cannot renew the [Sequoyah] license unless

TVA can prove that it can continue to run it without failure.” *Id.* at 8. BREDL cites 10 C.F.R. § 54.21, which provides that an IPA must “demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the period of extended operation.” *Id.*; 10 C.F.R. § 54.21(a)(3). The NRC Staff points out, however, that the regulation providing the standard for granting a license renewal request is 10 C.F.R. § 54.29, which states that the applicant must provide “reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the CLB.” NRC Staff Answer at 64; 10 C.F.R. § 54.29(a). As the NRC Staff notes, “reasonable assurance” that a plant will operate within its CLB is not the same as “pro[of] that it can continue to run . . . without failure,” which is the standard BREDL has put forward. NRC Staff Answer at 64; Petition at 8. In short, BREDL has misstated the law. There is simply no requirement in NRC regulations that an applicant “prove” that its plant will not fail during license renewal.

Second, BREDL argues that TVA has not provided time-limited aging analyses showing that “the effects of aging on the intended function(s) will be adequately managed for the period of extended operation.” Petition at 8 (citing 10 C.F.R. § 54.21(c)(iii)). As the NRC Staff notes, the Application *does* provide time-limited aging analyses in section 4. NRC Staff Answer at 65. Whether these analyses are adequate is another issue that we do not consider here, but it is clear at this point that BREDL’s claim that the Application does not contain TLAAs is in error, and therefore cannot form the basis of an admissible contention. 10 C.F.R. § 2.309(f)(1)(vi).

Third, BREDL appears to argue that NUREG-1437, the Generic Environmental Impact Statement for License Renewal of Nuclear Plants (GEIS),<sup>38</sup> is inadequate and should “be discarded and revised” to take into account “all of the elements of risk to the community, to commerce and to the environment.” Petition at 8. BREDL further argues that such an analysis must consider “the human health effects of low dose exposures, the mental stress to the population living with such risk, low-income and disproportionately affected individuals and the full effect of cancer-causing agents emitted to the environment.” *Id.* at 9. To the extent BREDL challenges the GEIS, these arguments are outside the scope of this proceeding. The Commission has made clear that challenges to the GEIS’s generic determinations (which are incorporated into NRC regulations as “Category 1” issues in 10 C.F.R. Part 51, Subpart A, Appendix B, Table B-1) amount to attacks on NRC regulations and are not within the scope of license renewal proceedings. *See, e.g., Turkey Point, CLI-01-17, 54 NRC at 16.*

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<sup>38</sup> See Office of Nuclear Reactor Regulation, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437 (May 1996).

## **V. SELECTION OF HEARING PROCEDURES**

NRC regulations state that “upon a determination that a request for hearing/petition to intervene should be granted and a hearing held, . . . the [Board] designated to rule on the request/petition will determine and identify the specific hearing procedures to be used for the proceeding” pursuant to 10 C.F.R. § 2.310(a)-(h). Because we determine that Contention B shall be held in abeyance, we neither grant nor deny BREDL’s request for a hearing and petition to intervene. As such, we need not select hearing procedures at this juncture. Any such determination must await the potential admission of Contention B or another new contention.

## **VI. CONCLUSION**

For the foregoing reasons, it is determined:

- A. BREDL has demonstrated standing to intervene in this proceeding.
- B. BEST and MATRR have not demonstrated standing to intervene in this proceeding.
- C. Contentions A, C, D, E, F-1, F-2, F-3, and the safety-related portion of Contention B are inadmissible.
- D. The environmental-related portion of Contention B is held in abeyance, pending further order of the Commission.
- E. The Licensing Board will hold a telephone conference with the parties in which we will discuss a schedule of further proceedings in this matter.
- F. This Order is subject to appeal to the Commission in accordance with the provisions of 10 C.F.R. § 2.311. An appeal meeting applicable requirements set forth in that section must be filed within twenty-five (25) days of service of this Order.

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Alex S. Karlin, Chairman  
ADMINISTRATIVE JUDGE

Dr. Paul B. Abramson  
ADMINISTRATIVE JUDGE

Dr. Gary S. Arnold  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
July 5, 2013

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**William J. Froehlich**, Chairman  
**Dr. Richard F. Cole**  
**Dr. Mark O. Barnett**

**In the Matter of**

**Docket No. 40-9075-MLA  
(ASLBP No. 10-898-02-MLA-BD01)**

**POWERTECH USA, INC.  
(Dewey-Burdock In Situ Uranium  
Recovery Facility)**

**July 22, 2013**

**RULES OF PRACTICE: CONTENTIONS (NEW OR AMENDED;  
ADMISSIBILITY)**

To be admissible, like a contention that is submitted with an initial hearing request, a post-hearing petition contention, i.e., a new or amended contention, also must satisfy the substantive contention admissibility standards set forth in 10 C.F.R. § 2.309(f)(1).

**RULES OF PRACTICE: CONTENTIONS (NEPA MIGRATION  
TENET)**

Admitted contentions challenging an applicant's Environmental Report may, in appropriate circumstances, function as challenges to similar portions of the Staff's Environmental Impact Statement. This "migration tenet" applies when "the information in the DEIS is sufficiently similar to the information in the ER." *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-11-1, 73 NRC 19, 26 (2011). In this circumstance, a party need not file

a new or amended contention; the previously admitted contention will simply be viewed as applying to the relevant portion of the DEIS.

#### **RULES OF PRACTICE: CONTENTIONS (NEPA MIGRATION TENET)**

The migration tenet is appropriate only so long as the DEIS analysis or discussion at issue is essentially *in para materia* with the ER analysis or discussion that is the focus of the contention.

#### **RULES OF PRACTICE: CONTENTIONS (NEPA MIGRATION TENET)**

If the “new” contention raises the same concern admitted at the initial stage of the proceeding, its admissibility need not be relitigated and redecided at each step of the NEPA process, namely the issuances of the DSEIS and the FSEIS.

#### **RULES OF PRACTICE: CONTENTIONS (CONTENTION OF OMISSION; CONTENTION OF ADEQUACY)**

There are two primary types of contentions — contentions of omission and contentions of adequacy. “A contention of omission is one that alleges an application suffers from an improper omission, whereas a contention of adequacy raises a specific substantive challenge to how particular information or issues have been discussed in the application.” *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 6 and 7), LBP-11-6, 73 NRC 149, 200 n.53 (2011). Based on its language, a contention can be characterized as a contention of omission, a contention of adequacy, or both.

#### **RULES OF PRACTICE: CONTENTIONS (CONTENTION OF OMISSION)**

An admitted contention of omission may be rendered moot by subsequent license-related documents filed by the NRC Staff that address the alleged omission.

#### **RULES OF PRACTICE: CONTENTIONS (NEW OR AMENDED; TIMELINESS)**

Until the DSEIS is issued, the intervenors have no way to know in what form or manner, if any, the NRC Staff will use information from an RAI response. As a

consequence, the intervenors can only file their contentions when the information appears in or is omitted from the DSEIS. It would be patently unreasonable to require an intervenor, or a potential intervenor, to divine what use the information collected by the NRC Staff will or will not serve in the DSEIS.

**RULES OF PRACTICE: CONTENTIONS (NEW OR AMENDED; TIMELINESS)**

Intervenors and potential intervenors have a period of time to file new or amended contentions in response to a DSEIS. They are not required to file their contentions on information or studies that are published in the period between the date for initial contentions and the date the DSEIS is published.

**RULES OF PRACTICE: CONTENTIONS (NEW OR AMENDED; TIMELINESS)**

Intervenors cannot be expected to raise a claim each time a document is created relating to a proceeding, especially if that document is a mere part of a larger, arguably incomplete, process. The Board does not expect intervenors to raise a concern regarding each portion of the process, but instead notes that intervenors need not file a contention until all relevant parts of a process are completed.

**NEPA: ENVIRONMENTAL IMPACT STATEMENT  
(RECIRCULATION FOR COMMENTS)**

The NRC Staff need not recirculate a supplemental NEPA document every time new information becomes available. Recirculation is required only when the information presents a “seriously different picture of the environmental impacts.” *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 14 (1999).

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**MEMORANDUM AND ORDER**  
**(Ruling on Proposed Contentions Related to the**  
**Draft Supplemental Environmental Impact Statement)**

**I. INTRODUCTION**

On August 5, 2010, the Board in the above-captioned matter ruled on two petitions to intervene and requests for hearing.<sup>1</sup> The Board admitted the Oglala Sioux Tribe and the then-designated Consolidated Petitioners<sup>2</sup> as intervenors in this proceeding challenging the application of Powertech (USA), Inc. ("Powertech" or "Applicant") to construct and operate an in-situ leach uranium recovery (ISR) facility in Custer and Fall River Counties, South Dakota.<sup>3</sup> The Board also admitted a total of seven contentions proposed by the Oglala Sioux Tribe and the Consolidated Intervenors.<sup>4</sup>

On November 15, 2012, the Nuclear Regulatory Commission Staff (NRC Staff) notified the Board of the public availability of its Draft Supplemental

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<sup>1</sup> LBP-10-16, 72 NRC 361 (2010).

<sup>2</sup> Although originally called the Consolidated Petitioners, the Board now refers to Susan Henderson, Dayton Hyde, and Aligning for Responsible Mining (ARM) as the Consolidated Intervenors.

<sup>3</sup> LBP-10-16, 72 NRC at 380-93.

<sup>4</sup> *Id.* at 443-44.

Environmental Impact Statement (DSEIS) prepared pursuant to the National Environmental Policy Act (NEPA), 42 U.S.C. § 4332, and the agency's implementing regulations, 10 C.F.R. Part 51.<sup>5</sup> On January 25, 2013, both the Oglala Sioux Tribe and the Consolidated Intervenors filed proposed contentions relating to the DSEIS.<sup>6</sup> On March 7, 2013, NRC Staff filed its response to the proposed contentions,<sup>7</sup> followed on March 11, 2013, by the Powertech response.<sup>8</sup> On March 25, 2013, both the Oglala Sioux Tribe and the Consolidated Intervenors submitted replies in support of their respective motions for new contentions.<sup>9</sup>

In this Memorandum and Order, the Board concludes that three new contentions proposed in response to the DSEIS are admissible, seven contentions are admissible because of the migration tenet, and the balance of the proposed contentions are inadmissible.

## II. BACKGROUND

The background of this case has been set forth in detail in the Board's August 5, 2010, opinion.<sup>10</sup> In that opinion and order, the Board first determined that the Oglala Sioux Tribe and the Consolidated Intervenors had standing to pursue their claims.<sup>11</sup> Additionally, the Board considered whether ten proposed contentions from the Oglala Sioux Tribe and nine proposed contentions from the Consolidated Intervenors met the contention admissibility standards set forth in 10 C.F.R. § 2.309(f)(1). In so doing, the Board admitted seven contentions, four proffered by the Oglala Sioux Tribe and three proffered by the Consolidated Intervenors.

As outlined in the Board's 2010 decision, the previously admitted contentions are as follows:

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<sup>5</sup> Letter to Administrative Judges Froehlich, Cole, and Barnett, from Patricia Jehle, Counsel for NRC Staff (Nov. 15, 2012) (ADAMS Accession No. ML12320A623); *see* Supplement to the Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities, NUREG-1910 (Supp. 4, Nov. 2012) (ADAMS Accession No. ML12312A040) [hereinafter DSEIS].

<sup>6</sup> *See* List of Contentions of the Oglala Sioux Tribe Based on the [DSEIS] (Jan. 25, 2013) [hereinafter Oglala Sioux Tribe's Proposed Contentions]; Consolidated Intervenors' New Contentions Based on DSEIS (Jan. 25, 2013) [hereinafter Consolidated Intervenors' Proposed Contentions].

<sup>7</sup> NRC Staff's Answer to Contentions on [DSEIS] (Mar. 7, 2013) [hereinafter Staff's Answer].

<sup>8</sup> Applicant Powertech (USA) Uranium Corporation's Response to Consolidated Petitioners' Request for a Hearing/Petition for Intervention (Mar. 11, 2013) [hereinafter Powertech's Response].

<sup>9</sup> Consolidated Intervenors' Consolidated Reply Re: DSEIS (Mar. 25, 2013) [hereinafter Consolidated Intervenors' Reply]; Consolidated Reply of the Oglala Sioux Tribe (Mar. 25, 2013) [hereinafter Oglala Sioux Tribe's Reply].

<sup>10</sup> *See* LBP-10-16, 72 NRC at 376-80.

<sup>11</sup> *Id.* at 380-93.

For the Oglala Sioux Tribe —

Contention 1 — Powertech's Application is deficient because it fails to address adequately protection of historical and cultural resources.

Contention 2 — Failure to include necessary information for adequate determination of baseline ground water quality.

Contention 3 — Failure to include adequate hydrogeological information to demonstrate ability to contain fluid migration.

Contention 4 — Inadequate analysis of Ground Water Quantity Impacts.

For the Consolidated Intervenors —

Contention D — Powertech's presentation and analysis of baseline water quality data in its Application is inadequate. Further, Powertech's analysis of aquifer confinement fails to include an analysis of how artesian and horizontal flow could impact surrounding aquifers and surface waters.

Contention E (merged with J) — The lack of adequate confinement of the host Inyan Kara aquifer makes the proposed operation inimical to public health and safety in violation of section 40.31(d). Further, Applicant's failure to describe faults and fractures between aquifers, through which the groundwater can spread uranium, thorium, radium 226 and 228, arsenic, and other heavy metals, violates section 51.45(c) and (e).

Contention K — The Application is not in conformance with 10 C.F.R. § 40.9 and 10 C.F.R. § 51.45 because the Application does not provide analyses that are adequate, accurate, and complete in all material respects to demonstrate that cultural and historic resources . . . are identified and protected pursuant to section 106 of the National Historic Preservation Act. As a result, the Application fails to comply with Section 51.60 . . .<sup>12</sup>

In its analysis of contention admissibility, the Board denied several of the Oglala Sioux Tribe's and the Consolidated Intervenors' proposed contentions for their failure to meet the contention admissibility standards set forth in 10 C.F.R. § 2.309(f)(1).<sup>13</sup> The Board rejected some of the proposed contentions because they

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<sup>12</sup> *Id.* at 443-44.

<sup>13</sup> See *infra* Part III.A for the contention admissibility standards.

were unsupported,<sup>14</sup> some because they were premature,<sup>15</sup> and some because they were outside the scope of the licensing proceeding.<sup>16</sup>

After the issuance of the Board's 2010 decision, which neither Powertech nor the NRC Staff challenged on appeal before the Commission, the Board held two prehearing conference calls with the parties regarding administrative matters.<sup>17</sup> As stated, the DSEIS was made public in November 2012 and both the Oglala Sioux Tribe and Consolidated Intervenors filed proposed new contentions based on the DSEIS. Now before the Board is the question of the admissibility of these parties' proposed new contentions.

### III. LEGAL STANDARDS

#### A. New and Amended Contentions

To be admissible, like a contention that is submitted with an initial hearing request, a post-hearing petition contention, i.e., a new or amended contention, also must satisfy the substantive contention admissibility standards set forth in 10 C.F.R. § 2.309(f)(1), namely the contention must

- (i) Provide a specific statement of the issue of law or fact to be raised or controverted . . . ;
- (ii) Provide a brief explanation of the basis for the contention;
- (iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;
- (iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;
- (v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue . . . ; [and]
- (vi) . . . [P]rovide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.<sup>18</sup>

Additionally, pursuant to 10 C.F.R. § 2.309(c),<sup>19</sup> if a party submits a proposed

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<sup>14</sup> See LBP-10-16, 72 NRC at 395-400, 407-08, 409-11, 440-42 (rejecting Consolidated Intervenors' Contentions A, B, C, F, H, and Oglala Sioux Tribe's Contention 10).

<sup>15</sup> See *id.* at 419-22, 438-40 (discussing Oglala Sioux Tribe's Contention 9 and a portion of Oglala Sioux Tribe's Contention 1).

<sup>16</sup> See *id.* at 408-09, 428-38 (discussing Consolidated Intervenors' Contention G and Oglala Sioux Tribe's Contentions 5, 6, 7, and 8).

<sup>17</sup> See Tr. at 410, 478.

<sup>18</sup> 10 C.F.R. § 2.309(f)(1).

<sup>19</sup> The current section 2.309(c) was established by 77 Fed. Reg. 46,561 and officially enacted on September 4, 2012. See 77 Fed. Reg. 46,561 (Aug. 3, 2012). In its October 16, 2012, *(Continued)*

contention after the initial filing deadline announced in the applicable *Federal Register* notice for submitting a hearing petition, it “will not be entertained absent a determination by the presiding officer that a participant has demonstrated good cause.”<sup>20</sup> Good cause exists when “(i) [t]he information upon which the filing is based was not previously available; (ii) [t]he information upon which the filing is based is materially different from information previously available; and (iii) [t]he filing has been submitted in a timely fashion based on the availability of the subsequent information.”<sup>21</sup>

If the reason a motion to admit a new or amended contention was filed after the deadline does not relate to the substance of the filing itself, the standard contained in 10 C.F.R. § 2.307 applies in determining whether the motion can be considered timely.<sup>22</sup> Section 2.307 provides that a filing deadline “may be extended or shortened either by the Commission or the presiding officer for good cause, or by stipulation approved by the Commission or the presiding officer.”<sup>23</sup> Good cause in this section is not explicitly defined.<sup>24</sup> Therefore, to be admissible at this stage, a contention must not only meet contention admissibility standards of section 2.309(f)(1), but must also satisfy the timeliness requirements of section 2.309(c) or section 2.307.

## B. Migration Tenet

Admitted contentions challenging an applicant’s Environmental Report (ER) may, in appropriate circumstances, function as challenges to similar portions of the Staff’s Environmental Impact Statement.<sup>25</sup> This “migration tenet” applies when “the information in the DEIS is sufficiently similar to the information in the

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Order memorializing the Board’s October 4, 2012, conference call with the parties and establishing a supplemental initial scheduling order, the Board determined that the standards set forth in the now-current section 2.309(c) would apply to new or amended contentions submitted after the applicable deadline although this section’s current language was not in place at the start of this proceeding. Licensing Board Order (Second Prehearing Conference Call Summary and Supplemental Initial Scheduling Order) at 4 (Oct. 16, 2012).

<sup>20</sup> 10 C.F.R. § 2.309(c).

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

<sup>22</sup> 10 C.F.R. § 2.309(c)(2).

<sup>23</sup> 10 C.F.R. § 2.307(a).

<sup>24</sup> 77 Fed. Reg. at 46,571 (“The NRC notes that ‘good cause’ in § 2.307 does not share the same definition that is used for ‘good cause’ in final § 2.309(c) . . . .”). The *Federal Register* notice provides health issues or an unexpected weather event as examples of reasons that might constitute good cause for purposes of requesting an extension under section 2.307. *Id.*

<sup>25</sup> *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-01-23, 54 NRC 163, 172 n.3 (2001); *see Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 84 (1998).

ER.”<sup>26</sup> In this circumstance, a party need not file a new or amended contention; the previously admitted contention will simply be viewed as applying to the relevant portion of the DEIS.<sup>27</sup> This is appropriate, however, only so long as the DEIS analysis or discussion at issue is essentially *in para materia* with the ER analysis or discussion that is the focus of the contention. Alternatively, an intervenor attempting to litigate an issue based on expressed concerns about the DEIS may need to amend the admitted contention or submit a new contention if the information in the DEIS is sufficiently different from the information in the ER that supported the original contention’s admission.<sup>28</sup> A new or amended contention related to portions of the DEIS that differ from the ER must be timely filed under section 2.309(c), and meet the contention admissibility standards of section 2.309(f)(1) to be admitted.<sup>29</sup>

### C. Contentions of Omission or Adequacy

There are two primary types of contentions — contentions of omission and contentions of adequacy.<sup>30</sup> “A contention of omission is one that alleges an application suffers from an improper omission, whereas a contention of adequacy raises a specific substantive challenge to how particular information or issues have been discussed in the application.”<sup>31</sup> Based on its language, a contention can

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<sup>26</sup> *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-11-1, 73 NRC 19, 26 (2011); *accord Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), LBP-08-2, 67 NRC 54, 63-64 (2008).

<sup>27</sup> *Detroit Edison Co.* (Fermi Nuclear Power Plant, Unit 3), LBP-12-23, 76 NRC 445, 470-71 (2012) (“The Board may construe an admitted contention contesting the ER as a challenge to a subsequently issued DEIS or FEIS without the necessity for Intervenors to file a new or amended contention.”).

<sup>28</sup> *Vogtle ESP Site*, LBP-08-2, 67 NRC at 63-64.

<sup>29</sup> *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-28, 56 NRC 373, 382 (2002) (“While a contention contesting an applicant’s environmental report generally may be viewed as a challenge to the NRC Staff’s subsequent draft EIS, new claims must be raised in a new or amended contention.”); *Vogtle ESP Site*, LBP-08-2, 67 NRC at 64 (explaining that, if the portion of the ER that an admitted contention challenges is not sufficiently similar to the DEIS, “an intervenor attempting to litigate an issue based on expressed concerns about the DEIS may need to amend the admitted contention or, if the information in the DEIS is sufficiently different from that in the ER that supported the contention’s admission, submit a new contention”).

<sup>30</sup> *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 6 and 7), LBP-11-6, 73 NRC 149, 200 (2011); *see, e.g., Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC 427, 442 (2011) (discussing whether a contention should properly be characterized as a contention of omission or a contention of adequacy and the ramifications of such a designation with regard to contention admissibility).

<sup>31</sup> *Turkey Point*, LBP-11-6, 73 NRC at 200 n.53; *accord McGuire/Catawba*, CLI-02-28, 56 NRC at 382-83 (“There is, in short, a difference between contentions that merely allege an ‘omission’ of (Continued)

be characterized as a contention of omission, a contention of adequacy, or both.<sup>32</sup> An admitted contention of omission may be rendered moot by subsequent license-related documents filed by the NRC Staff that address the alleged omission.<sup>33</sup> In this circumstance, the party that filed the original contention of omission must file a new or amended contention if it wishes to challenge the adequacy or sufficiency of the NRC Staff's treatment of the relevant issue.<sup>34</sup> That new or amended contention must be timely filed and must meet the contention admissibility standards. Generalized grievances with the sufficiency of the NRC Staff's analysis or the adequacy of included documentation are not enough to raise a proposed contention to the level of admissibility.<sup>35</sup>

#### IV. DISCUSSION

##### **A. The Oglala Sioux Tribe's Proposed Contention 1: "Failure to Meet Applicable Legal Requirements Regarding Protection of Historical and Cultural Resources, and Failure to Involve or Consult the Oglala Sioux Tribe as Required by Federal Law"**

###### ***1. Positions of the Parties***

The Oglala Sioux Tribe's proposed new Contention 1 is nearly identical to Consolidated Intervenors' proposed new Contention A. Contention 1 alleges the DSEIS's "failure to meet applicable legal requirements regarding protection of historical and cultural resources, and failure to involve or consult the Oglala Sioux Tribe as required by federal law."<sup>36</sup> The Oglala Sioux Tribe contends that the proposed site has not yet been adequately surveyed with regard to its potential cultural resources, which renders premature the DSEIS's determination

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information and those that challenge substantively and specifically how particular information has been discussed in a license application.").

<sup>32</sup> *McGuire/Catawba*, CLI-02-28, 56 NRC at 383 n.45; see *Turkey Point*, LBP-11-6, 73 NRC at 199-200.

<sup>33</sup> *McGuire/Catawba*, CLI-02-28, 56 NRC at 383 ("Where a contention alleges the omission of particular information or an issue from an application, and the information is later supplied by the applicant or considered by the Staff in a draft EIS, the contention is moot.").

<sup>34</sup> *Id.*

<sup>35</sup> *PPL Susquehanna LLC* (Susquehanna Steam Electric Station, Units 1 and 2), LBP-07-10, 66 NRC 1, 23 (2007); *Shieldalloy Metallurgical Corp.* (Amendment Request for Decommissioning of the Newfield, New Jersey Facility), LBP-07-5, 65 NRC 341, 352 (2007) ("[T]he contention rule is strict by design" and does "not permit the filing of a vague, unparticularized contention, unsupported by affidavit, expert, or documentary support." (footnotes omitted)); *PPL Susquehanna, LLC* (Susquehanna Steam Electric Station, Units 1 and 2), LBP-07-4, 65 NRC 281, 303-04 (2007).

<sup>36</sup> Oglala Sioux Tribe's Proposed Contentions at 4.

that impacts resulting from the site's operation are "small."<sup>37</sup> Additionally, the Oglala Sioux Tribe contends that the NRC Staff has not engaged in the required National Historic Preservation Act (NHPA) consultation process with a number of tribes that have an interest in the proposed site.<sup>38</sup>

In response to this contention, the NRC Staff asserts that the contention is not based on any new or materially different information and is, therefore, not timely pursuant to 10 C.F.R. § 2.309(c). Additionally, the NRC Staff notes that the results of an additional survey being conducted by the NRC Staff may be challenged at a later date, if appropriate.<sup>39</sup>

Powertech takes the same stance as the NRC Staff in its response to the Oglala Sioux Tribe's contention. It argues that the contention does not satisfy the requirements for new and amended contentions set out in section 2.309(c).<sup>40</sup> It maintains that, to be considered timely, the contention should have been filed well before January 25, 2013.<sup>41</sup> Additionally, Powertech contends that the portion of the Oglala Sioux Tribe's contention alleging inadequate surveying related to cultural resources is not yet ripe because the section 106 process, which provides a federally recognized Indian tribe with a procedural right to protect its interest in cultural resources,<sup>42</sup> is not yet complete.<sup>43</sup> When that process is complete, Powertech states that the Oglala Sioux Tribe may submit a new or amended contention, if appropriate.<sup>44</sup>

In its reply to the NRC Staff's and Powertech's arguments, the Oglala Sioux Tribe points out that the Board, in its August 5, 2010, Order that granted the petitions to intervene and requests for hearing, found that the Oglala Sioux Tribe's NHPA and NEPA contentions were not ripe because it is the duty of the Staff, not the applicant, to consult with interested tribes concerning the proposed site.<sup>45</sup> The Oglala Sioux Tribe now argues that the contention is admissible because the DSEIS, which should reflect those Staff obligations, has been issued.<sup>46</sup>

The Oglala Sioux Tribe also rejects the arguments that it should wait to file contentions related to cultural surveys until future planned surveys have been completed. It asserts that the Staff "should not be able to pre-emptively 'moot'

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<sup>37</sup> *Id.* at 5.

<sup>38</sup> *Id.* at 5-6.

<sup>39</sup> Staff's Answer at 12-13.

<sup>40</sup> Powertech's Response at 12.

<sup>41</sup> *Id.* at 12.

<sup>42</sup> National Historic Preservation Act § 106, 16 U.S.C. § 470.

<sup>43</sup> Powertech's Response at 13.

<sup>44</sup> *Id.*

<sup>45</sup> Oglala Sioux Tribe's Reply at 4.

<sup>46</sup> *Id.*

an otherwise admissible contention based on actions that it has not yet taken.”<sup>47</sup> Further, it contends that the Staff’s arguments inappropriately focus on the merits of the Oglala Sioux Tribe’s contentions, rather than their admissibility pursuant to the standards set forth in 10 C.F.R. § 2.309(f)(1).<sup>48</sup>

Finally, the Oglala Sioux Tribe argues that its Contention 1 should not be found inadmissible for failing to be based on new or materially different information.<sup>49</sup> The Oglala Sioux Tribe declares that it raised an admissible contention in relation to the application that is similar to the one it currently proposes and no subsequent research or information has been released that alters the basis of its previously admitted contention.<sup>50</sup> Accordingly, the Oglala Sioux Tribe reasons that “the same sufficient information that formed the basis of Powertech’s inadequate application materials now forms an inadequate basis for the NRC Staff’s analysis in the DSEIS.”<sup>51</sup>

## **2. *Board Ruling***

The Oglala Sioux Tribe’s proposed Contention 1 is nearly identical to Consolidated Intervenors’ proposed Contention A. Both allege a failure to protect historical and cultural resources and a failure to involve or consult with affected Native American tribes.

These concerns (protection of cultural and historical resources and adequacy of consultation) have already been addressed in this proceeding. The Board in LBP-10-16 admitted two contentions that question the adequacy of the protection of historic and cultural resources.<sup>52</sup> With the issuance of the DSEIS, these concerns about the protection of historic and cultural resources have “migrated” because this previously admitted issue now appears in relation to information in the DSEIS. Strictly speaking, the Oglala Sioux Tribe and the Consolidated Intervenors did not need to refile their respective Contentions 1 and A after the issuance of the DSEIS because no further information addressing the expressed concerns of the Oglala Sioux Tribe or the Consolidated Intervenors about the adequacy of the existing cultural resources surveys has been generated by the Staff. Moreover, in accordance with its authority to consolidate party contentions and presentations under section 2.316, the Board will combine these four iterations (two filed in response to the ER and two filed in response to the DSEIS) into a single contention

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<sup>47</sup> *Id.* at 5.

<sup>48</sup> *Id.* at 6.

<sup>49</sup> *Id.*

<sup>50</sup> *Id.*

<sup>51</sup> *Id.*

<sup>52</sup> LBP-10-16, 72 NRC at 419-22.

addressing the protection of historic and cultural resources, the terms of which are set forth in Appendix A to this opinion.<sup>53</sup>

The issue of the adequacy of the consultation process with interested tribes was also addressed in 2010 in LBP-10-16. There the Board held that “the issue of the alleged failure to consult with the Tribe . . . is material and within the scope of this proceeding.”<sup>54</sup> The Board further found that this portion of the contention was not yet ripe and directed the Oglala Sioux Tribe “to wait until the [DSEIS] is issued by the NRC Staff to interpose the issue of the adequacy of the agency’s consultation efforts.”<sup>55</sup> Both the Oglala Sioux Tribe and Consolidated Intervenors have now timely raised the lingering issue of the adequacy of the NRC’s consultation process with the Native American tribes.

Although the NRC Staff notes that it “continues to work to resolve any remaining disagreements among the consulting parties,” such actions do not moot this contention. It is apparent that, notwithstanding the issuance of the DSEIS, this process has not been completed and the intervenors are alleging only that the scope of the ongoing consultation process is inadequate.

As a consequence, the prior ripeness issue is no longer a bar to this contention. Additionally, the contention is supported by a showing sufficient to meet the contention admissibility requirements of section 2.309(f)(1), and it is timely in accord with section 2.309(c)(2). Consequently, pursuant to the Board’s authority under section 2.316, the consultation portions of Contention 1 and Contention A questioning the adequacy of the Staff’s consultation efforts with Native American tribes as required by 36 C.F.R. § 800.2(c)(2)(ii)(D) are admitted and are consolidated into one issue statement, Contention 1B.

**B. The Oglala Sioux Tribe’s Proposed Contention 2: “The DSEIS Fails to Include Necessary Information for Adequate Determination of Baseline Ground Water Quality”**

*1. Positions of the Parties*

The Oglala Sioux Tribe’s proposed Contention 2 is identical to Consolidated Intervenors’ proposed Contention B — “The DSEIS fails to include neces-

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<sup>53</sup> A contention alleging a failure to protect historic and cultural resources was similarly admitted in the pending Crow Butte Marsland and Crow Butte Renewal proceedings. See *Crow Butte Resources, Inc.* (Marsland Expansion Area), LBP-13-6, 77 NRC 253, 286-88 (2013); *Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), LBP-08-24, 68 NRC 691, 719-24 (2008).

<sup>54</sup> LBP-10-16, 72 NRC at 422; see *Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), CLI-09-9, 69 NRC 331, 350-51 (2009) (discussing the Board’s ruling that tribal consultation is within the scope of the proceeding).

<sup>55</sup> LBP-10-16, 72 NRC at 422.

sary information for adequate determination of baseline groundwater quality.”<sup>56</sup> Like Consolidated Intervenors, the Oglala Sioux Tribe contends that the DSEIS contravenes NRC regulations, NUREG provisions providing Staff regulatory guidance, and NEPA because “it fails to provide an adequate baseline groundwater characterization or demonstrate that ground water samples were collected in a scientifically defensible manner, using proper sample methodologies.”<sup>57</sup> The Oglala Sioux Tribe argues that baseline conditions are mandated by statute and regulation, and that the DSEIS is inadequate because it fails to include a proper analysis of the required baselines with respect to groundwater quality.<sup>58</sup>

To support this contention, the Oglala Sioux Tribe relies on the supplemental declaration of Dr. Robert Moran as well as a memorandum from Dr. Richard Abitz.<sup>59</sup> It also points to specific areas in the DSEIS that it claims “admit[] that substantial water quality data collection will only be conducted after license issuance.”<sup>60</sup> In addition, the Oglala Sioux Tribe asserts these portions of the DSEIS lack a scientific basis because they “rely on Powertech’s decision to only consider, review, and proposed [sic] monitoring (both quality and quantity) for groundwater wells within 2 [kilometer] of the proposed mining area.”<sup>61</sup> The 2-kilometer figure, the Oglala Sioux Tribe notes, is from NRC Regulatory Guide 4.14, which “was drafted over 30 years ago, in 1980 — and not updated since.”<sup>62</sup> Because of its age and because it “applies exclusively to conventional uranium mills — and contains no analysis or guidance premised upon any review of in-situ leach uranium mining activities,” the Oglala Sioux Tribe argues that the DSEIS’s reliance on Regulatory Guide 4.14 is “not justified.”<sup>63</sup> For these reasons, the Oglala Sioux Tribe argues that Contention 2 should be admitted.

In responding to these assertions by the Oglala Sioux Tribe, the NRC Staff makes essentially the same arguments for inadmissibility as it does in response to the arguments of Consolidated Intervenors in support of their Contention B. Specifically, the NRC Staff declares that the contention is not based on any new or materially different information and, therefore, does not conform to the standards for new or amended contentions set forth in 10 C.F.R. § 2.309(c).<sup>64</sup> It also argues

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<sup>56</sup> Oglala Sioux Tribe’s Proposed Contentions at 10.

<sup>57</sup> *Id.* at 10-11.

<sup>58</sup> *Id.* at 12 (citing *Half Moon Bay Fisherman’s Marketing Association v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988)) (“The establishment of baseline conditions of the affected environment is a fundamental requirement of the NEPA process.”).

<sup>59</sup> *Id.* at 11, 13.

<sup>60</sup> *Id.* at 14 (citing DSEIS at 2-16, 7-8, 7-14, 7-17).

<sup>61</sup> *Id.* at 14 (citing DSEIS at xxxiv, xxxv, 3-6, 4-54, 4-57, 4-59, 5-31, 7-4).

<sup>62</sup> *Id.* at 14.

<sup>63</sup> *Id.*

<sup>64</sup> Staff’s Answer at 15.

that, like the Consolidated Intervenors, the Oglala Sioux Tribe misinterprets the DSEIS, citing portions of it to support its contention that relate to the operation of the Project, not establishing baseline conditions.<sup>65</sup> Further, the NRC Staff seeks to discredit the Oglala Sioux Tribe’s reliance on Dr. Abitz’s memorandum, asserting that the memorandum was created in 2009 and does not reference the DSEIS.<sup>66</sup>

Powertech, too, argues that the Oglala Sioux Tribe’s Contention 2 is inadmissible for failure to meet the standards for new or amended contentions.<sup>67</sup> To support this, Powertech asserts the Oglala Sioux Tribe’s allegations were addressed in documents that have been available for some time, namely the first draft license issued in July 2012 and responses to RAIs submitted in June 2011.<sup>68</sup> Therefore, Powertech argues, the Board should reject Contention 2 for failing to meet the timeliness standards set forth in 10 C.F.R. § 2.309(c).

In its reply to the NRC Staff’s and Powertech’s arguments, the Oglala Sioux Tribe argues that the lack of any baseline groundwater analysis is an omission that has been “carried forward from the application to the DSEIS.”<sup>69</sup> The Oglala Sioux Tribe notes that the Board stated in its August 5, 2010, Order that violations of NEPA were not ripe as alleged against an applicant because it is the agency, not an applicant, that bears the burden of satisfying the statute.<sup>70</sup> Thus, the Oglala Sioux Tribe contends, “this NEPA contention ripened with the publication of the DSEIS and the newly available contention is timely filed.”<sup>71</sup>

The Oglala Sioux Tribe refutes the argument that it did not properly identify the portions of the DSEIS that it claims are not in accordance with NEPA and NRC regulations by pointing to its filing and the affidavit of Dr. Moran.<sup>72</sup> In these documents, the Oglala Sioux Tribe contends, specific references are made to the problematic sections of the DSEIS.<sup>73</sup> Moreover, the Oglala Sioux Tribe argues that the nature of contentions of omission makes it “irrational for the Oglala Sioux Tribe to be able to identify those portions of the DSEIS where missing necessary data is *not* presented.”<sup>74</sup>

Finally, the Oglala Sioux Tribe challenges the argument that it should have raised its NEPA contentions when Powertech’s response to NRC Staff’s RAIs were submitted. The Oglala Sioux Tribe contends that it “had already successfully

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<sup>65</sup> *Id.* at 17.

<sup>66</sup> *Id.* at 16.

<sup>67</sup> Powertech’s Response at 12.

<sup>68</sup> *Id.* at 13.

<sup>69</sup> Oglala Sioux Tribe’s Reply at 8.

<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

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

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

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

alleged that the Powertech information was inadequate” and that the additional information in the RAI responses is not a basis to find NEPA contentions based on the DSEIS inadmissible.<sup>75</sup> The Oglala Sioux Tribe again highlights the Board’s assertion that NEPA challenges are only appropriate as applied to NRC Staff-prepared documents, and it is the agency that is responsible for complying with NEPA, not the Applicant.<sup>76</sup> For these reasons, the Oglala Sioux Tribe maintains that Contention 2 is admissible.

## **2. *Board Ruling***

The Oglala Sioux Tribe’s proposed Contention 2 and Consolidated Intervenors’ proposed Contention B are identical to the Oglala Sioux Tribe’s original Contention 2 and the first part of the Consolidated Intervenors’ original Contention D.<sup>77</sup> The Oglala Sioux Tribe argues that the analysis of the baseline conditions is mandated by statute and regulation, and that the DSEIS is inadequate because, like the ER, it fails to include a proper analysis of the required baselines with respect to groundwater quality.<sup>78</sup> As such, the migration tenet applies and this issue migrates from a criticism of the Powertech ER to a criticism of the NRC Staff’s DSEIS. Moreover, as it did with Oglala Sioux Tribe Contention 1 and Consolidated Intervenors’ Contention A, in accordance with section 2.316 the Board will combine the multiple iterations of these issue statements into a single contention as set forth in Appendix A to this decision.<sup>79</sup>

In making this ruling, the Board notes that it finds unpersuasive Powertech’s assertion that this contention is untimely because there were document exchanges between Powertech and the NRC Staff that took place after the application was filed and before the DEIS issued. The key issue in Contention 2 is the adequacy of the DSEIS. Until the DSEIS is issued, the intervenors have no way to know in what form or manner, if any, the NRC Staff will use information from an RAI response. As a consequence, the intervenors could only file their contentions when the information appeared (or was omitted) from the DSEIS.<sup>80</sup> It would be patently unreasonable to require an intervenor, or a potential intervenor, to divine what use the information collected by the NRC Staff will or will not serve in the

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<sup>75</sup> *Id.* at 9.

<sup>76</sup> *Id.*

<sup>77</sup> LBP-10-16, 72 NRC at 400-01.

<sup>78</sup> Oglala Sioux Tribe’s Proposed Contentions at 10.

<sup>79</sup> A similar contention was admitted in the Strata Energy proceeding. *See Strata Energy, Inc.* (Ross In Situ Recovery Uranium Project), LBP-12-3, 75 NRC 164, 192-95 (2012).

<sup>80</sup> *See Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), LBP-82-79, 16 NRC 1116, 1118 (1982) (noting that a late-filed contention lacks good cause when it is based on a draft EIS that contains no new information relevant to the contention).

DSEIS. Therefore, the Board finds that this contention is timely and the issues therein have migrated from their original form challenging the ER to their current form challenging the DSEIS.

**C. The Oglala Sioux Tribe’s Proposed Contention 3: “The DSEIS Fails to Include an Adequate Hydrogeological Analysis to Assess Potential Impacts to Groundwater”**

***1. Positions of the Parties***

The Oglala Sioux Tribe’s proposed Contention 3 is identical to the Consolidated Intervenors’ proposed Contention C — “the DSEIS fails to include an adequate hydrogeological analysis to assess potential impacts to groundwater.”<sup>81</sup> As a result of this failure, the Oglala Sioux Tribe argues that the DSEIS also does not “provide sufficient information to establish potential effects of the project on the adjacent surface and ground-water resources.”<sup>82</sup> These inadequacies, the Oglala Sioux Tribe contends, are in contravention of 10 C.F.R. §§ 51.10, 51.70, 51.71 and NEPA.<sup>83</sup>

To support this contention, which is labeled a “contention of omission,” the Oglala Sioux Tribe cites to Dr. Moran’s supplemental declaration and points to NUREG-1569, “Standard Review Plan for In Situ Leach Uranium Extraction License Applications.”<sup>84</sup> The Oglala Sioux Tribe argues that NUREG-1569 specifies the level of detail required of an application with respect to the hydrogeology of the site at issue.<sup>85</sup> According to the Oglala Sioux Tribe, “At minimum, the applicant must develop an acceptable conceptual model of site hydrology adequately supported by the data presented in the site characterization,”<sup>86</sup> which, the Oglala Sioux Tribe asserts, is not done in the DSEIS. The specific omissions the Oglala Sioux Tribe highlights include “unsubstantiated assumptions as to the isolation of the aquifers in the ore-bearing zones and failure to account for natural and man-made hydraulic conductivity through natural breccias pipe formations.”<sup>87</sup> The Oglala Sioux Tribe maintains that the DSEIS’s assurances of future tests and

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<sup>81</sup> Oglala Sioux Tribe’s Proposed Contentions at 15.

<sup>82</sup> *Id.*

<sup>83</sup> *Id.*

<sup>84</sup> *See id.*

<sup>85</sup> *Id.*

<sup>86</sup> *Id.* at 16 (citing Standard Review Plan for In Situ Leach Uranium Extraction License Applications, NUREG-1569, at 2-21 to 2-22 (June 2003) (ADAMS Accession No. ML031550302)).

<sup>87</sup> *Id.* at 16.

actions do not make up for these deficiencies.<sup>88</sup> Accordingly, the Oglala Sioux Tribe argues that this contention should be admitted.

In response to this contention, the NRC Staff states that the Oglala Sioux Tribe did not demonstrate that its contention is based on new or materially different information from that in the application.<sup>89</sup> Therefore, the NRC Staff contends that the contention is inadmissible because it does not meet the standards for new and amended contentions contained in 10 C.F.R. § 2.309(c).<sup>90</sup>

Additionally, the NRC Staff states that Dr. Moran's declaration, on which the Oglala Sioux Tribe relies to support its contention, overlooks relevant information that was contained in the Applicant's 2011 RAI response.<sup>91</sup> As a result, the NRC Staff maintains that, to the extent the Oglala Sioux Tribe disputed the information contained in the RAI response, the Oglala Sioux Tribe was obligated to file a new contention within 30 days of the issuance of that document in order to be timely under the regulations.<sup>92</sup> The NRC Staff also points to areas of the DSEIS that purportedly contain the information Dr. Moran claims is missing.<sup>93</sup> Therefore, the NRC Staff states that "the Board must reject the Intervenors' arguments because they fail to specifically address the DSEIS."<sup>94</sup>

The NRC Staff also states that the future actions upon which the DSEIS purports to rely in its analysis of impacts constitute a license condition, the use of which is permitted in NEPA documents.<sup>95</sup> The NRC Staff argues further that the regulatory arguments the Oglala Sioux Tribe makes are inapplicable because the regulations the Oglala Sioux Tribe cite pertain to safety criteria dealing with conventional milling, not to ISR activities, and are relevant to the applicant, not to the agency's NEPA review.<sup>96</sup>

Powertech echoes the NRC Staff's response and argues that the contention does not meet the standards for new and amended contentions.<sup>97</sup> The information addressed in the Oglala Sioux Tribe's Contention 3, Powertech contends, has been previously presented in the RAI responses, the first draft license, and other

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<sup>88</sup> *Id.* at 17.

<sup>89</sup> Staff's Answer at 18.

<sup>90</sup> *Id.*

<sup>91</sup> *Id.*

<sup>92</sup> *Id.* at 18-19.

<sup>93</sup> *Id.* at 19-20 (citing DSEIS §§ 3.4.3, 4.5.2.1.1.2.2, 3.5.3.1, 3.5.3.2, 3.5.3.3).

<sup>94</sup> *Id.* at 20 (citing *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station), CLI-01-24, 54 NRC 349, 358 (2001)).

<sup>95</sup> *Id.* (citing *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 17 (1999)).

<sup>96</sup> *Id.*

<sup>97</sup> Powertech's Response at 12.

areas of the record previously made available.<sup>98</sup> Accordingly, the contention is not based on new or materially different information and cannot be admitted.<sup>99</sup>

In support of its contention and in reply to the NRC Staff and Powertech, the Oglala Sioux Tribe argues that this is a “contention of omission” that “carries forward a contention admitted previously based on the same inadequate information contained in the application materials.”<sup>100</sup> The Oglala Sioux Tribe also takes issue with the NRC Staff’s argument that portions of the DSEIS contain the information the Oglala Sioux Tribe contends is missing.<sup>101</sup> In contrast to the case law the NRC Staff cites, the Oglala Sioux Tribe asserts that it has “include[d] citations and discussion of the applicable statutory and regulatory requirements, followed by detailed discussion of the aspects of the DSEIS . . . where the NRC Staff’s NEPA document fails to meet those standards.”<sup>102</sup> The detail and specific references to the DSEIS, the Oglala Sioux Tribe claims, distinguish it from the case law the NRC Staff cites to refute the contention.<sup>103</sup> Moreover, the Oglala Sioux Tribe asserts that the NRC Staff’s “merits arguments is irrelevant and inappropriate at the admissibility stage.”<sup>104</sup> Therefore, the Oglala Sioux Tribe maintains that Contention 3 is admissible.

## **2. Board Ruling**

The Oglala Sioux Tribe’s Contention 3 and Consolidated Intervenors’ Contention C are the same as Oglala Sioux Tribe’s original Contention 3 and portions of Consolidated Intervenors’ original Contentions D and E.<sup>105</sup> As such, the migration tenet applies and this issue migrates from a criticism of the Powertech ER to a criticism of the NRC Staff’s DSEIS.

The Consolidated Intervenors and the Oglala Sioux Tribe are presenting the same concern that was raised regarding Powertech’s ER (and that was admitted as a contention) as a concern regarding the DSEIS. Thus it is not necessary to raise a new or amended contention because, as the Board has explained, if the “new” contention raises the same concern admitted at the initial stage of the proceeding, its admissibility need not be relitigated and redecided at each step

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<sup>98</sup> *Id.* at 13.

<sup>99</sup> *Id.*

<sup>100</sup> Oglala Sioux Tribe’s Reply at 10.

<sup>101</sup> *Id.*

<sup>102</sup> *Id.* at 11.

<sup>103</sup> *Id.*

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

<sup>105</sup> See LBP-10-16, 72 NRC at 400-07, 424-26. Consolidated Intervenors’ Contention E, as originally admitted, was a combination of Consolidated Intervenors’ original Contentions E and J. LBP-10-16, 72 NRC at 404-07.

of the NEPA process, namely the issuances of the DSEIS and the FSEIS. This contention is not new; it is merely the continuation of an admitted concern with the application. To the extent the intervenors have concerns with the adequacy of the hydrogeologic analysis necessary to show adequate confinement and potential impacts to groundwater, this is already an issue set for hearing. Once again, in accord with section 2.316, for efficiency and to clarify this concern, the Board combines the multiple iterations of this contention into a single contention for hearing as set forth in Appendix A to this order.<sup>106</sup>

#### **D. The Oglala Sioux Tribe’s Proposed Contention 4: “The DSEIS Fails to Adequately Analyze Ground Water Quantity Impacts”**

##### ***1. Positions of the Parties***

The Oglala Sioux Tribe’s Contention 4 — “the DSEIS fails to adequately analyze ground water quantity impacts” — is identical to Consolidated Intervenors’ Contention D.<sup>107</sup> The Oglala Sioux Tribe asserts that “the DSEIS presents conflicting information on ground water consumption such that the water consumption impacts of the project cannot be accurately evaluated.”<sup>108</sup> This, the Oglala Sioux Tribe argues, violates 10 C.F.R. §§ 51.10, 51.70, 57.71, and NEPA.<sup>109</sup>

To support this contention of omission, the Oglala Sioux Tribe cites to Dr. Moran’s declaration.<sup>110</sup> Like Consolidated Intervenors, the Oglala Sioux Tribe highlights Dr. Moran’s concerns that “no data are provided for the volumes of ground water required for [nonconstruction] phases, throughout the life of the project,” and that the DSEIS fails to explore the impacts on local and regional water sources of the projected large-volume water use at the site.<sup>111</sup>

The NRC Staff argues that the contention does not meet the standards for new and amended contentions because the Oglala Sioux Tribe has not demonstrated in what ways the contention is based on new or materially different information.<sup>112</sup> It also argues that the Oglala Sioux Tribe’s claims “rest on an incomplete or inaccurate reading of the DSEIS” in part because Dr. Moran cites portions of the DSEIS that do not support his opinions and simultaneously overlooks portions of

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<sup>106</sup> A similar contention was admitted in the Strata Energy proceeding. *Strata Energy, Inc.*, LBP-12-3, 75 NRC at 195-98.

<sup>107</sup> Oglala Sioux Tribe’s Proposed Contentions at 18.

<sup>108</sup> *Id.*

<sup>109</sup> *Id.*

<sup>110</sup> *Id.*

<sup>111</sup> *Id.* at 19-20.

<sup>112</sup> *Id.* at 21.

the DSEIS that contain the information the Oglala Sioux Tribe alleges has been omitted.<sup>113</sup>

Similarly, Powertech challenges the admission of Contention 4 by asserting that the Oglala Sioux Tribe has not demonstrated that its contention is based on any new or materially different information in contravention of 10 C.F.R. § 2.309(c).<sup>114</sup> The information on which this contention is based, it asserts, has been previously made available and the time to challenge such information has since lapsed.<sup>115</sup> Accordingly, both the NRC Staff and Applicant argue that the Oglala Sioux Tribe's Contention 4 is inadmissible.

In reply, the Oglala Sioux Tribe argues that its contention specifically points to areas in the DSEIS that it claims violate NEPA and applicable regulations.<sup>116</sup> Additionally, the Oglala Sioux Tribe maintains that, because the NEPA issues "are based, in part, on the same information upon which the Oglala Sioux Tribe's contention regarding inadequate ground water quantity analysis in the application," it should be admitted.<sup>117</sup> It argues that "NRC Staff cannot release NEPA documents that blindly parallel the applicant's information and omissions and then be allowed to argue the applicant's omissions prevent filing of new contentions concerning the newly released NEPA [document]."<sup>118</sup>

Finally, the Oglala Sioux Tribe argues that the NRC Staff's assertion that the contention is inadmissible because certain portions of the DSEIS address the omissions the Oglala Sioux Tribe contends exist amounts to an argument on the merits and is, therefore, irrelevant at the contention admissibility stage.<sup>119</sup> Therefore, the Oglala Sioux Tribe maintains that Contention 4 is admissible.

## **2. Board Ruling**

As noted, the Oglala Sioux Tribe's Contention 4 — "the DSEIS fails to adequately analyze ground water quantity impacts" — is identical to Consolidated Intervenors' Contention D. Both of these contentions raise the same concern as the Oglala Sioux Tribe's previously admitted Contention 4 and parts of Consolidated Intervenors' Contention F, which was not admitted.<sup>120</sup>

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<sup>113</sup> *Id.* at 21-22.

<sup>114</sup> Powertech's Response at 12.

<sup>115</sup> *Id.* at 13.

<sup>116</sup> Oglala Sioux Tribe's Reply at 11.

<sup>117</sup> *Id.*

<sup>118</sup> *Id.* at 12 (citing *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 209 (D.C. Cir. 1991)).

<sup>119</sup> *Id.* at 12.

<sup>120</sup> See LBP-10-16, 72 NRC at 400-07, 426-28. The Board rejected Consolidated Intervenors' original Contention F on a similar topic. See *id.* at 407-08.

The Oglala Sioux Tribe and the Consolidated Intervenors now present the same concern that was raised by the Oglala Sioux Tribe in the initial pleading stage (and that was admitted as a contention) as a concern regarding the DSEIS. It is, therefore, unnecessary to raise a new or amended contention. To the extent the “new” contention raises the same concern admitted at the initial stage of the proceeding, it need not be repeated to remain a viable contention. Accordingly, the Oglala Sioux Tribe’s concerns with the adequacy of the analysis of groundwater quantity impacts is already an issue set for hearing. As before, pursuant to section 2.316 for efficiency and to clarify this scope of this concern, the Board combines the multiple iterations of this contention into a single contention for hearing as set forth in Appendix A to this decision.

The NRC Staff argues that, although Powertech’s supplemental information might have served as the basis for a late-filed contention, the contention would have been due within 30 days after the information became available.<sup>121</sup> The Staff, relying on *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1049 (1983) and *Power Authority of the State of New York* (James A. FitzPatrick Nuclear Power Plant; Indian Point, Unit 3), LBP-01-4, 53 NRC 121, 127 (2001), further contends that the Intervenors were not permitted to wait until that information reappeared in the DSEIS to file their contentions. The Board does not agree. The scheduling order,<sup>122</sup> as well as Commission regulation,<sup>123</sup> provide that intervenors and potential intervenors have a period of time to file new or amended contentions in response to a DSEIS. They are not required to file their contentions on information or studies that are published in the period between the date for initial contentions and the date the DSEIS is published. The gravamen of this contention is not that an RAI response contained new information, but that the DSEIS ignored it. There is no way for an intervenor to know what use, if any, the NRC Staff may make of a response to a request for additional information (RAI) or a study in the DSEIS. An intervenor is entitled to see the DSEIS and then file any new or amended contentions based on what appears in the DSEIS. To do otherwise would place an impossible burden on the intervenor and an unreasonable requirement that the intervenor divine what use, if any, the NRC Staff will make of that information in the DSEIS. As noted above, the Board combines the multiple iterations of this contention into a single contention for hearing as set forth in Appendix A to this decision.

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<sup>121</sup> Staff’s Answer at 21.

<sup>122</sup> See Order (Second Prehearing Conference Call Summary and Supplemental Initial Scheduling Order) (Oct. 16, 2012) at 3-4 (unpublished); Order (Supplementing Initial Scheduling Order) (Nov. 2, 2010) at 5-6 (unpublished).

<sup>123</sup> 10 C.F.R. § 2.309(b).

**E. The Oglala Sioux Tribe’s Proposed Contention 5: “The DSEIS Fails to Demonstrate Adequate Technical Sufficiency and Fails to Present Information in a ‘Clear, Concise’ Manner to Enable Effective Public Review”**

***I. Positions of the Parties***

The Oglala Sioux Tribe’s Contention 5 charges that “the DSEIS fails to demonstrate adequate technical sufficiency and fails to present information in a ‘clear, concise’ manner to enable effective public review.”<sup>124</sup> This, the Oglala Sioux Tribe argues, contravenes 10 C.F.R. §§ 51.70(b), 51.120; 10 C.F.R. Part 51 Appendix A; the Administrative Procedure Act; NEPA; Regulatory Guide 3.46; and NUREG-1569, “Standard Review Plan for In Situ Leach Uranium Extraction License Applications.”<sup>125</sup> As support for this contention, the Oglala Sioux Tribe cites Dr. Moran’s Supplemental Declaration.

Specifically, the Oglala Sioux Tribe argues that the NRC Staff’s “use of citations to materials incorporated by reference into the DSEIS is inadequate to justify the scientific conclusions presented.”<sup>126</sup> As an example, the Oglala Sioux Tribe notes the DSEIS’s consistent citations to “Powertech 2011,” which is a 5000-page document, to support “fundamental conclusions.”<sup>127</sup> Citations to this document, the Oglala Sioux Tribe argues, are “meaningless without more description and detail of where the information is contained in the document.”<sup>128</sup> The Oglala Sioux Tribe also notes the DSEIS’s reliance on the initial draft license, explaining that these are stale references because a revised draft license has been released.<sup>129</sup> As a result, the Oglala Sioux Tribe urges the republication of the DSEIS “in a manner that provides the necessary information, with the commensurate additional public comment period.”<sup>130</sup>

In response to this contention, the NRC Staff argues that the Oglala Sioux Tribe has failed to demonstrate a genuine dispute because the relevant regulations do not mandate that NEPA documents employ a certain citation format nor do they require that “an agency support every assertion in its NEPA document.”<sup>131</sup> The NRC Staff states that the document meets regulations so long as it provides

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<sup>124</sup> Oglala Sioux Tribe’s Proposed Contentions at 20.

<sup>125</sup> *Id.*

<sup>126</sup> *Id.* at 21.

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

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

<sup>129</sup> *Id.* at 22.

<sup>130</sup> *Id.* at 23.

<sup>131</sup> Staff’s Answer at 22.

references to the sources on which it relies.<sup>132</sup> In this respect, NRC Staff claims the Oglala Sioux Tribe's reliance on Dr. Moran's Declaration is misplaced because he does not address the citation formats used in the documents at issue.<sup>133</sup>

Additionally, the NRC Staff notes that the format of the DSEIS follows the recommendation set forth in NUREG-1749, "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs."<sup>134</sup> This was the same format Powertech followed in its ER. Thus, NRC Staff reasons, references to the application in the DSEIS refer, generally, to parallel sections in the ER.<sup>135</sup> Moreover, the NRC Staff points out that the Oglala Sioux Tribe could have contacted the Staff with any questions it had regarding the DSEIS.<sup>136</sup>

Finally, the NRC Staff attempts to refute the Oglala Sioux Tribe's arguments regarding the revised draft license<sup>137</sup> by claiming that the documents that contain the information incorporated into the draft license were publicly available during the comment period.<sup>138</sup> Therefore, the NRC Staff concludes, the Oglala Sioux Tribe had access to and could have addressed the information contained therein at a prior time.<sup>139</sup> The NRC Staff states that the DSEIS does not need to be recirculated because the Oglala Sioux Tribe has failed to demonstrate there is new information that "presents a 'seriously different picture of the environmental impact[s]'."<sup>140</sup>

Powertech, likewise, contends that Contention 5 should not be admitted. Powertech asserts that the Oglala Sioux Tribe has failed to demonstrate that Contention 5 is based on any new or materially different information as required by 10 C.F.R. § 2.309(c) because the Oglala Sioux Tribe could have filed proposed contentions in response to the draft license, which it did not do.<sup>141</sup> Additionally, Powertech argues that "it is the [Oglala Sioux] Tribe's burden to review the DSEIS and find the references that are required to present admissible contentions."<sup>142</sup> All relevant documents, it claims, were submitted according to the standards set forth in applicable agency guidance, and, therefore, documents referenced by

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<sup>132</sup> *Id.* at 21-22 (citing *Western Watersheds Project v. Bureau of Land Management*, 552 F. Supp. 2d 1113, 1129-30 (D. Nev. 2008)).

<sup>133</sup> *Id.* at 24.

<sup>134</sup> *Id.* at 23.

<sup>135</sup> *Id.*

<sup>136</sup> *Id.*

<sup>137</sup> See *id.* at 24.

<sup>138</sup> *Id.*

<sup>139</sup> *Id.*

<sup>140</sup> *Id.*

<sup>141</sup> Powertech's Response at 14-15.

<sup>142</sup> *Id.* at 15.

the DSEIS should be easily found.<sup>143</sup> Finally, with respect to republication and recirculation, Powertech asserts that “[t]he availability of new information after issuance of a DSEIS for comment is not enough to warrant re-publication.”<sup>144</sup> Accordingly, Powertech contends Contention 5 is inadmissible.

In response to these arguments, the Oglala Sioux Tribe contends that most of Powertech’s and the NRC Staff’s responses focus on merits arguments that are not appropriate at the contention admissibility stage.<sup>145</sup> The Oglala Sioux Tribe also urges the Board to reject the NRC Staff’s assertion that it could have contacted the Staff at any time with questions regarding the DSEIS.<sup>146</sup> This, the Oglala Sioux Tribe argues, is not supported by law or fact.<sup>147</sup> Moreover, the Oglala Sioux Tribe claims that it did contact the NRC Staff by filing “detailed written comments that NRC Staff required be filed within 45 days of the DSEIS release.”<sup>148</sup>

The Oglala Sioux Tribe also notes that, in its previous contention admissibility decision, the Board dealt with a similar contention, finding that NEPA requirements relevant to the clarity of the documents were binding on the agency only, not the Applicant.<sup>149</sup> With the issuance of the DSEIS, the Oglala Sioux Tribe therefore asserts that this contention is admissible.<sup>150</sup> Finally, the Oglala Sioux Tribe reiterates its argument with respect to the draft license, clarifying that “[i]t is the timing and lack of notice of the revised draft license that contravenes NRC regulations, not the use of draft licenses.”<sup>151</sup> Accordingly, the Oglala Sioux Tribe maintains that Contention 5 is admissible.

## **2. *Board Ruling***

As noted *supra* Part III.A, to be admissible at this stage a contention must meet both the timeliness requirements of 10 C.F.R. § 2.309(c) and the admissibility requirements of 10 C.F.R. § 2.309(f)(1). Failure to satisfy either one of these sections results in the contention not being admissible.

Contention 5 is similar to the Oglala Sioux Tribe’s original Contention 6 filed

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

<sup>144</sup> *Id.* (citing *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-04-39, 60 NRC 657, 659 (2004)).

<sup>145</sup> Oglala Sioux Tribe’s Reply at 12-13.

<sup>146</sup> *Id.* at 13.

<sup>147</sup> *Id.*

<sup>148</sup> *Id.*

<sup>149</sup> *Id.* at 14.

<sup>150</sup> *Id.*

<sup>151</sup> *Id.*

with its hearing petition in response to the Powertech application.<sup>152</sup> The Board rejected Contention 6, in part, because the contention could be characterized as “[a] general complaint about how the information [was] presented,” which was “not sufficient to raise a genuine dispute with the Application that is germane to the purpose of th[e] licensing proceeding.”<sup>153</sup> Additionally, the Board rejected original Contention 6 because it was not adequately supported in fact and the Board was, and remains, “unaware of any legal precedent or any NRC regulations that require an application to meet any organizational criteria or else risk being classified as technically inadequate.”<sup>154</sup> For these same reasons, the Board rejects the Oglala Sioux Tribe’s proposed Contention 5 for failing to provide sufficient information to show that a genuine dispute exists in contravention of 10 C.F.R. § 2.309(f)(1)(vi) and for failing to state an adequate legal basis for the contention in contravention of 10 C.F.R. § 2.309(f)(1)(i). Further, the DSEIS follows the format recommended in NUREG-1748, “Environmental Review Guidance for Licensing Actions Associated with NMSS Programs,” a format that Powertech followed in its Environmental Report.<sup>155</sup>

Additionally, the Oglala Sioux Tribe provides no support for its argument that the NRC Staff must recirculate the DSEIS for public comment based on the issuance of the revised draft license. The NRC Staff need not recirculate a supplemental NEPA document every time new information becomes available.<sup>156</sup> Recirculation is required only when, as the NRC Staff asserted, the information presents a “seriously different picture of the environmental impacts.”<sup>157</sup> The Oglala Sioux Tribe fails to show how the issuance of the new draft license creates such a “seriously different picture of the environmental impacts.” Because Contention 5 does not meet the contention admissibility standards in 10 C.F.R. § 2.309(f)(1),<sup>158</sup> the Board finds it inadmissible. The Board, therefore, need not analyze the issue of timeliness.

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<sup>152</sup> See LBP-10-16, 72 NRC at 430-32. The Oglala Sioux Tribe’s original Contention 6 read: “Inadequate technical sufficiency of the application and failure to present information to enable effective public review resulting in denial of due process.” *Id.* at 431.

<sup>153</sup> *Id.* at 432.

<sup>154</sup> *Id.*

<sup>155</sup> It is ironic, however, that the NRC Staff and Powertech insist that petitioners prepare contentions that refer to specific sections of an application or an environmental report, but, when preparing the required environmental documents, they merely provide blanket citations to documents that are hundreds, and in some cases thousands, of pages long.

<sup>156</sup> *Hydro Resources, Inc.*, CLI-04-39, 60 NRC at 659.

<sup>157</sup> *Hydro Resources, Inc.*, CLI-99-22, 50 NRC at 14 (quoting *Sierra Club v. Froehike*, 816 F.2d 205, 210 (5th Cir. 1987)).

<sup>158</sup> 10 C.F.R. § 2.309(f)(1)(ii), (iii), (vi).

## **F. The Oglala Sioux Tribe’s Proposed Contention 6: “Failure to Adequately Describe or Analyze Proposed Mitigation Measures”**

### ***I. Positions of the Parties***

In Contention 6, the Oglala Sioux Tribe claims that the DSEIS violates 10 C.F.R. §§ 51.10, 51.70, and 51.71, and the National Environmental Policy Act and implementing regulations and “fail[s] to adequately describe or analyze proposed mitigation measures.”<sup>159</sup> The Oglala Sioux Tribe states that NEPA requires the DSEIS to include and discuss means to mitigate adverse environmental impacts.<sup>160</sup> The DSEIS, it claims, does not contain the requisite detailed analysis regarding mitigation measures, nor does it evaluate the effectiveness of any of the mitigation measures it proposes.<sup>161</sup> For example, the Oglala Sioux Tribe states that the DSEIS relies on Powertech’s “commitment to restore groundwater back to its pre-mining condition,” without evaluating how effective the restoration efforts will be.<sup>162</sup> The Oglala Sioux Tribe then cites data supporting the fact that restoring groundwater to premining conditions is difficult and seldom entirely successful.<sup>163</sup> The DSEIS, the Oglala Sioux Tribe contends, fails to address “the ISL industry’s historic and ongoing inability to control aquifer contamination and restore groundwater” and does not detail how the Applicant will succeed in its own efforts to protect and restore groundwater.<sup>164</sup>

In response to this contention, the NRC Staff argues that Powertech’s plans with respect to groundwater restoration were discussed in the ER and Technical Report.<sup>165</sup> Therefore, the NRC Staff maintains, the Oglala Sioux Tribe should have raised this argument at a previous time.<sup>166</sup> The NRC Staff recognizes that the Oglala Sioux Tribe raised this argument as part of admitted Contention 2, but notes that it does “not point to any information in the DSEIS concerning mitigation measures that is significantly different from the information in the [ER].”<sup>167</sup>

Additionally, the NRC Staff argues that the Oglala Sioux Tribe failed to

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<sup>159</sup> Oglala Sioux Tribe’s Proposed Contentions at 23.

<sup>160</sup> *Id.* at 23 (citing 40 C.F.R. § 1502.16(h)).

<sup>161</sup> *Id.* at 23-24. The Oglala Sioux Tribe states that “[t]he current mitigation measure discussion consists of a multi-page chart which simply lists a series of proposed mitigation measure[s], with no elaboration or other analysis of how the operator expects to accomplish these items, or the expected effectiveness/limitations of each measure, as required by NEPA.” *Id.* at 27.

<sup>162</sup> *Id.* at 24.

<sup>163</sup> *Id.*

<sup>164</sup> *Id.*

<sup>165</sup> Staff’s Answer at 25.

<sup>166</sup> *Id.* at 25.

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

address a portion of the Generic Environmental Impact Statement (GEIS) that concerns the effectiveness of ISR projects in restoring groundwater to baseline conditions.<sup>168</sup> GEIS § 2.11.5, the NRC Staff argues, provides the data the Oglala Sioux Tribe contends are omitted.<sup>169</sup> Moreover, the NRC Staff asserts that the Oglala Sioux Tribe “misidentifies the proposed mitigation measure at issue”<sup>170</sup> as “restoration to baseline conditions,” when in fact all that is required is “groundwater restoration.”<sup>171</sup>

Finally, the NRC Staff states that, in accordance with Commission precedent, the DSEIS need not contain more information on mitigation measures than it already contains, specifically with regard to the description of the mitigation measures on which the NRC relies and the explanation of the limiting effect of the mitigation measures on environmental impacts.<sup>172</sup>

Powertech responds to Contention 6 by arguing that it is not based on any new or materially different information in contravention of 10 C.F.R. § 2.309(c)(1)(ii).<sup>173</sup> Additionally, Powertech argues that the DSEIS accounts for mitigation measures in a way that is “consistent with standard NRC practice across the board and does not result in the need for a re-evaluation of the mitigation measures and re-issuance of the DSEIS.”<sup>174</sup> Powertech further contends that the Oglala Sioux Tribe’s arguments should be construed as an “impermissible collateral attack on NRC regulations” because NUREG-1910 and several other documents “demonstrate that the [Oglala Sioux] Tribe’s statements regarding ISR groundwater restoration are erroneous” because groundwater need not be restored to baseline levels.<sup>175</sup>

In reply, the Oglala Sioux Tribe argues that the NRC Staff’s and Powertech’s responses are merits arguments that are inappropriate at the contention admissibility stage.<sup>176</sup> Additionally, the Oglala Sioux Tribe disputes that its contention is not based on new or materially different information, asserting that “the DSEIS proposes several mitigation measures that were listed in the DSEIS as newly proposed by NRC Staff to mitigate ground water impacts.”<sup>177</sup> The Oglala Sioux

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<sup>168</sup> *Id.*

<sup>169</sup> *Id.*

<sup>170</sup> *Id.* at 26.

<sup>171</sup> *Id.*

<sup>172</sup> *Id.* (citing *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, NM 87313), CLI-06-29, 64 NRC 417, 427 (2006)).

<sup>173</sup> Powertech’s Response at 16. Applicant specifically argues that “[t]he Tribe’s Contention is nothing more than an allegation that the DSEIS is deficient without any attempt to distinguish any information as new or materially/significantly different.” *Id.*

<sup>174</sup> *Id.* at 16.

<sup>175</sup> *Id.* at 17.

<sup>176</sup> Oglala Sioux Tribe’s Reply at 15.

<sup>177</sup> *Id.* (citing DSEIS at 6-13 to 6-14).

Tribe asserts that its contention is based on this new information, and, therefore, should be admitted.<sup>178</sup>

## **2. Board Ruling**

The NRC Staff and Powertech raise four principal objections to this contention. They argue that (1) the Oglala Sioux Tribe failed to identify anything new and materially different in the DSEIS; (2) the Oglala Sioux Tribe did not identify or challenge relevant sections of the GEIS; (3) the Oglala Sioux Tribe misidentified the proposed mitigation measure standard at issue; and (4) the mitigation measures listed in the DSEIS are adequate.

The first objection — that the Oglala Sioux Tribe has not identified anything new and materially different in the DSEIS — is factually incorrect. The DSEIS explicitly states, “Based on the potential impacts identified in Chapter 4 of this draft SEIS, the NRC staff ha[s] identified additional potential mitigation measures for the proposed Dewey-Burdock ISR Project. These mitigation measures are summarized in Section 6.3.”<sup>179</sup> In particular, “[t]he NRC staff ha[s] reviewed the mitigation measures the applicant proposed and ha[s] identified additional mitigation measures that could potentially reduce impacts (Table 6.3-1).”<sup>180</sup> Table 6.3-1 is a multipage table that lists additional mitigation measures. It contains the new and significant information that makes any part of this contention based on those additional mitigation measures timely under 10 C.F.R. § 2.309(c).

The second objection raised by the NRC Staff and Powertech is that the contention does not cite relevant sections of the GEIS that demonstrate the alleged omission and inadequacies. This objection is unsupported. First, the GEIS section referenced by the NRC Staff in its response — Section 2.11.5 “Aquifer Restoration” — is merely a recitation of historical aquifer restoration results; it is not a discussion of mitigation plans (the subject of the contention). Second, it is not clear NRC Staff relied upon this section of the GEIS when preparing the DSEIS, as it was not incorporated by reference or mentioned in any other manner. By contrast, the DSEIS explicitly incorporates by reference other sections of the GEIS — for example, the DSEIS explains that “NRC determinations of potential environmental impacts and the discussion of which GEIS impact conclusions were incorporated by reference are discussed in SEIS Chapter 4.”<sup>181</sup>

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<sup>178</sup> *Id.*

<sup>179</sup> DSEIS at 6-1 (emphasis added).

<sup>180</sup> *Id.* at 6-12.

<sup>181</sup> *Id.* at 1-5. “The doctrine of *expressio unis est exclusio alterius* ‘instructs that where a law expressly describes a particular situation to which it shall apply, what was omitted or excluded was intended to be omitted or excluded.’” *Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, (Continued)

The third objection raised by the NRC Staff and Powertech is that the contention misidentifies the proposed groundwater mitigation standard, namely whether groundwater must be restored to baseline conditions. On this objection, the NRC Staff and Powertech are correct. As noted in the DSEIS, Powertech will “be required to restore groundwater parameters affected by ISR operations to levels that are protective of human health and safety,”<sup>182</sup> though not necessarily to background levels if, for example, alternate concentration limits are identified as protective of human health.<sup>183</sup> In Contention 6, the Oglala Sioux Tribe correctly noted the “protective of human health and safety” standard, but incorrectly conflated it with requiring the aquifers to be restored to background conditions.

In Contention 6, the Oglala Sioux Tribe cites groundwater restoration as *one example* of an inadequate mitigation measure. However, the Oglala Sioux Tribe contends that “this lack of analysis of proposed mitigation measures is expansive, and not limited to ground water mitigation.”<sup>184</sup> Specifically, in Contention 6 the Oglala Sioux Tribe contends “[t]he current mitigation measure discussion consists of a multipage chart which simply lists a series of proposed mitigation measure [sic], with no elaboration or other analysis of how the operator expects to accomplish these items, or the expected effectiveness/limitations of each measure, as required by NEPA.”<sup>185</sup>

The fourth objection by the NRC Staff and Powertech — that the mitigation measures in the DSEIS are satisfactory — is essentially a merits challenge. Both the NRC Staff and Powertech cite case law that states that “[t]he DSEIS need not contain ‘a complete mitigation plan’ or ‘a detailed explanation of specific [mitigation] measures which will be employed.’”<sup>186</sup> However, the Oglala Sioux Tribe also cites to case law stating that “[a] reasonably complete discussion of possible mitigation measures” should be included in the DSEIS rather than “broad generalizations and vague references to mitigation measures.”<sup>187</sup> Thus, the Oglala Sioux Tribe has demonstrated that a genuine dispute exists with respect to material issues of law and fact, a standard that must be met for purposes of contention admissibility.<sup>188</sup>

Additionally, this contention meets the other contention admissibility standards because the Oglala Sioux Tribe has provided a specific statement of the issue, has

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Nebraska), LBP-08-24, 68 NRC 691, 759 (2008) (citing *Reyes-Gaona v. North Carolina Growers Association*, 250 F.3d 851, 865 (4th Cir. 2001)).

<sup>182</sup> DSEIS at 2-69.

<sup>183</sup> *Id.* at 4-64.

<sup>184</sup> Oglala Sioux Tribe’s Proposed Contentions at 26-27.

<sup>185</sup> *Id.* at 27.

<sup>186</sup> Staff’s Answer at 26; Powertech’s Response at 16.

<sup>187</sup> Oglala Sioux Tribe’s Proposed Contentions at 24.

<sup>188</sup> 10 C.F.R. § 2.309(f)(1)(vi).

briefly explained the basis of the contention, has demonstrated that the issue is within the scope of this proceeding, has shown that the issue is material, and has proffered a concise statement of the facts supporting the contention.<sup>189</sup> Further, as noted, this contention is timely pursuant to the good cause standards set forth in section 2.309(c) for the admission of new and amended contentions. Accordingly, whether or not the list of mitigation measures in the DSEIS is satisfactory is a valid basis for a contention.<sup>190</sup> Therefore, the Board admits the Oglala Sioux Tribe's Contention 6.

#### **G. The Oglala Sioux Tribe's Proposed Contention 7: "The DSEIS Fails to Include a Reviewable Plan for Disposal of 11e.(2) Byproduct Material"**

##### ***I. Positions of the Parties***

In Contention 7, the Oglala Sioux Tribe alleges that "the DSEIS Fails to Include a Reviewable Plan for Disposal of 11e.(2) Byproduct Material."<sup>191</sup> The Oglala Sioux Tribe notes that the DSEIS "indicates that Powertech may or may not use the White Mesa Uranium Mill in Utah, or some other unidentified facility, for disposal of the 11e.(2) byproduct generated at the proposed ISL Facility."<sup>192</sup> Thus, the Oglala Sioux Tribe argues that the DSEIS lacks "a meaningful review of impacts" in violation of NEPA and 10 C.F.R. §§ 51.10, 51.70, 51.71, which require the DSEIS to analyze impacts associated with permanent waste disposal.<sup>193</sup> The Oglala Sioux Tribe asserts that the discussion in the DSEIS of the permanent waste disposal plan and its impacts is deficient in several respects. First, the Oglala Sioux Tribe alleges that the DSEIS does not establish that the NRC Staff has fully evaluated the permanent waste disposal plan and its impacts. Second, the Oglala Sioux Tribe alleges that the DSEIS does not provide the public, intervenors, and other entities with sufficient information regarding the permanent waste disposal plan and its impacts to enable such interested parties to analyze fully the impacts associated with the application.<sup>194</sup> Additionally, the Oglala Sioux Tribe asserts that "the policies set forth by NEPA prevent the NRC [S]taff from segmenting the disposal issues from the inquiry into whether applicant will be allowed to create

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<sup>189</sup> *Id.* § 2.309(f)(1)(i)-(v).

<sup>190</sup> See 10 C.F.R. § 51.103(a)(4) (requiring the record of decision to summarize any license conditions and monitoring programs adopted in connection with mitigation measures).

<sup>191</sup> Oglala Sioux Tribe's Proposed Contentions at 27.

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

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

<sup>194</sup> *Id.* at 28.

11e.(2) Byproduct material in the first instance.”<sup>195</sup> Finally, the Oglala Sioux Tribe contends that the DSEIS’s failure to analyze a disposal facility results in its failure to examine all the impacts of the proposal as required by NEPA.<sup>196</sup> For all these reasons the Oglala Sioux Tribe asserts this contention should be admitted.

In response, the NRC Staff notes that the draft licenses issued to Powertech contain a license condition requiring Powertech to have a disposal plan in place before operation begins.<sup>197</sup> The NRC Staff also states that it has “considered impacts related to the disposal of byproduct material,” and that these considerations appear in the DSEIS and the GEIS.<sup>198</sup> The Staff argues that because the Oglala Sioux Tribe does not take issue with these specific sections of the DSEIS and GEIS, its contention is inadmissible.<sup>199</sup>

Furthermore, the NRC Staff states that the contention must be rejected because it is not based on new or materially different information and, therefore, is untimely.<sup>200</sup> Specifically, NRC Staff asserts that the Oglala Sioux Tribe is making the same arguments it made with respect to the ER.<sup>201</sup> Finally, the NRC Staff argues that Contention 7 “lacks a legal basis” because the standards the Oglala Sioux Tribe cites to support its contention do not apply to ISL facilities.<sup>202</sup>

Powertech, too, argues that the Board should reject Contention 7 because it is not based on any new or materially different information.<sup>203</sup> Specifically, Powertech points to the license condition in its application and First Draft License prohibiting Powertech from operating its facility until a waste disposal plan is in place.<sup>204</sup> Powertech also argues that Contention 7 should have been raised in response to the information contained in the First Draft License, which was issued on July 31, 2012.<sup>205</sup>

The Oglala Sioux Tribe claims in its reply that the Board should reject the NRC Staff’s and Powertech’s arguments because the Board, in ruling on its intervention petition, found that a similar contention proposed by the Oglala Sioux Tribe that challenged the application was not ripe. According to the Oglala Sioux Tribe,

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<sup>195</sup> *Id.* at 28-29 (citing *Pacific Gas and Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-08-1, 67 NRC 1, 13 (2008)).

<sup>196</sup> *Id.* at 29.

<sup>197</sup> *Id.* at 27.

<sup>198</sup> Staff’s Answer at 26-27 (citing DSEIS §§ 1.4.4, 1.4.5, 4.14, 4.3.1.1.2, 4.3.1.2.2; GEIS §§ 4.2.12, 4.2.12.2, 4.4.12.4).

<sup>199</sup> *Id.* at 27 (citing *Millstone*, CLI-01-24, 54 NRC at 358); *see id.* at 29.

<sup>200</sup> *Id.* at 27; *see* 10 C.F.R. § 2.309(c).

<sup>201</sup> Staff’s Answer at 27.

<sup>202</sup> *Id.* at 27-28 (citing LBP-10-16, 72 NRC at 434).

<sup>203</sup> Powertech’s Response at 18.

<sup>204</sup> *Id.*

<sup>205</sup> *Id.* at 18-19.

the Board explained there that only the NRC Staff is bound by NEPA, not the Applicant, and, therefore, the Oglala Sioux Tribe could refile its contention if the DSEIS did not contain an analysis of waste disposal that the Oglala Sioux Tribe found adequate.<sup>206</sup> Now, the Oglala Sioux Tribe argues, “the binding requirements of NEPA are squarely at issue as a result of the publication of the DSEIS,” and, therefore, the contention is timely and admissible.

The Oglala Sioux Tribe further asserts that, contrary to the NRC Staff’s argument, it did set forth legal bases for its contention by citing 10 C.F.R. §§ 51.10, 51.70, and 51.71 as well as 40 C.F.R. Part 40, Appendix A, CEQ regulations, and various case law.<sup>207</sup> Finally, the Oglala Sioux Tribe asserts that the NRC Staff’s argument that its analysis is adequate under NEPA should fail because it is a merits argument that is not appropriately made at the contention admissibility stage.<sup>208</sup>

## **2. *Board Ruling***

This contention mirrors the Oglala Sioux Tribe’s original Contention 7, which this Board found inadmissible in LBP-10-16.<sup>209</sup> In that Order, although the Board agreed with the Oglala Sioux Tribe that the disposal issue should be addressed more fully than it was in the application before a license is issued to Powertech, the Board nevertheless rejected the contention on ripeness grounds.<sup>210</sup> In proposing the contention once again in response to the DSEIS, the Oglala Sioux Tribe states that it is a contention of omission.<sup>211</sup> As discussed earlier, a contention of omission is mooted if the relevant document contains the allegedly omitted information.<sup>212</sup> The NRC Staff correctly notes that it addresses impacts related to disposal of byproduct material in the DSEIS.<sup>213</sup> The Staff also addresses these impacts in the GEIS, specifically in sections 4.2.12, 4.2.12.2, and 4.4.12.4. In addition, the draft licenses the NRC Staff has issued to Powertech include a license condition requiring that Powertech establish a disposal plan for byproduct material before beginning operations.<sup>214</sup> Therefore, this contention of omission is moot. Moreover, because the Oglala Sioux Tribe neither substantively disputes

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<sup>206</sup> Oglala Sioux Tribe’s Reply at 16.

<sup>207</sup> *Id.*

<sup>208</sup> *Id.*

<sup>209</sup> LBP-10-16, 72 NRC at 432-35.

<sup>210</sup> *Id.* at 434.

<sup>211</sup> Oglala Sioux Tribe’s Proposed Contentions at 28.

<sup>212</sup> McGuire/Catawba, CLI-02-28, 56 NRC at 383.

<sup>213</sup> See DSEIS §§ 1.4.4, 1.4.5, 4.14, 4.3.1.1.2, 4.3.1.2.2.

<sup>214</sup> See Draft License SUA-1600 for Powertech (USA), Inc. (July 31, 2012) at 5, 12 (ADAMS Accession No. ML12207A480) (License Conditions 9.9 and 12.6).

the analysis of impacts related to disposal of byproduct material in relevant sections of the DSEIS and the GEIS, nor addresses the license condition related to disposal of byproduct material, the Board rejects this contention as failing to comply with the admissibility dictates of 10 C.F.R. § 2.309(f)(1)(vi).<sup>215</sup>

#### **H. The Oglala Sioux Tribe’s Proposed Contention 8: “Requiring the Tribe to Formulate Contentions Before a Final EIS Is Released and Failing to Follow Scoping Process Violates NEPA”**

##### *1. Positions of the Parties*

The Oglala Sioux Tribe alleges that Applicant “requir[ed] the tribe to formulate contentions before a final EIS [was] released and fail[ed] to follow [the] scoping process” in violation of NEPA, specifically NEPA’s public participation and informed decisionmaking mandates.<sup>216</sup> The Oglala Sioux Tribe contends that it has been denied the benefit of a final NEPA analysis because it was required to submit contentions prior to the culmination of the NEPA process.<sup>217</sup> This, the Oglala Sioux Tribe contends, wastes both its and the NRC Staff’s resources.<sup>218</sup>

Additionally, the Oglala Sioux Tribe asserts that “the DSEIS was issued without the benefit of a required scoping process.”<sup>219</sup> It claims that, pursuant to implementing regulations, certain procedures must be conducted with regard to defining the scope of the EIS in order to satisfy NEPA requirements.<sup>220</sup> The Oglala Sioux Tribe asserts that Powertech did not employ the mandated procedures and, thus, the Oglala Sioux Tribe was denied the opportunity, among other things, “to provide input to help define the proposed action . . . and to ensure that other environmental review and consultation requirements related to the proposed action [were] prepared concurrently and integrated with the DSEIS.”<sup>221</sup> In connection with this, the Oglala Sioux Tribe argues that the NRC Staff failed to prepare a summary of determinations and conclusions and provide it to scoping participants as required by regulation.<sup>222</sup>

In response, the NRC Staff notes that the Board previously rejected this contention in ruling on the Oglala Sioux Tribe’s initial hearing petition.<sup>223</sup> Ad-

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<sup>215</sup> See *Millstone*, CLI-01-24, 54 NRC at 358.

<sup>216</sup> Oglala Sioux Tribe’s Proposed Contentions at 30.

<sup>217</sup> *Id.* at 31.

<sup>218</sup> *Id.*

<sup>219</sup> *Id.* at 32.

<sup>220</sup> *Id.*

<sup>221</sup> *Id.* at 32-33.

<sup>222</sup> *Id.* at 33 (citing 10 C.F.R. § 51.29(b)).

<sup>223</sup> Staff’s Answer at 29.

ditionally, NRC Staff argues that the Oglala Sioux Tribe “incorrectly states that it is the Staff who is requiring the Tribe to submit contentions on the DSEIS,” when this is an obligation imposed by the regulations.<sup>224</sup> Because “regulations are not subject to collateral attack in NRC hearings,” the NRC Staff asserts the contention must be rejected.<sup>225</sup> Moreover, the NRC Staff argues that the Oglala Sioux Tribe will not be denied the benefit of a final NEPA analysis because the Final Supplemental Environmental Impact Statement (FSEIS) is currently being prepared and will be provided to the Oglala Sioux Tribe upon completion.<sup>226</sup> At that point, the Oglala Sioux Tribe may submit additional contentions challenging the FSEIS if appropriate.<sup>227</sup>

With regard to the Oglala Sioux Tribe’s scoping arguments, the NRC Staff asserts that the regulation on which the Oglala Sioux Tribe relies to support its arguments does not apply to a supplemental EIS, but only to an initial EIS.<sup>228</sup> Accordingly, the NRC Staff asserts that the Oglala Sioux Tribe’s Contention 8 is inadmissible because it is outside the scope of the proceeding.<sup>229</sup>

Powertech, too, argues that Contention 8 is inadmissible. First, Powertech argues that the Oglala Sioux Tribe’s contention does not have a legal basis because NRC regulations do not require contentions to be filed in relation to a DSEIS and the Oglala Sioux Tribe could have waited for the issuance of the FSEIS before filing new or amended contentions.<sup>230</sup> Additionally, Powertech argues that this contention “effectively offers a collateral attack on NRC regulations associated with administrative hearings,” which is impermissible.<sup>231</sup>

With regard to the Oglala Sioux Tribe’s scoping arguments, Powertech notes that the regulations require scoping for initial EISs, not SEISs,<sup>232</sup> and that the DSEIS in this case states that the “GEIS scoping process [is] sufficient for the purposes of defining the scope of this SEIS.”<sup>233</sup> Powertech additionally points out that the NRC Staff “participated in three public scoping meetings . . . and eight public meetings to solicit comments on the draft GEIS,” and received public comments on the GEIS.<sup>234</sup>

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<sup>224</sup> *Id.*

<sup>225</sup> *Id.* at 29-30 (citing 10 C.F.R. § 2.335(a)).

<sup>226</sup> *Id.* at 30.

<sup>227</sup> *Id.*

<sup>228</sup> *Id.*

<sup>229</sup> *Id.* (citing 10 C.F.R. § 2.309(f)(1)(iii)).

<sup>230</sup> Powertech’s Response at 19.

<sup>231</sup> *Id.* at 19.

<sup>232</sup> *Id.* at 20 (citing 10 C.F.R. §§ 51.26(d), 51.92(d)).

<sup>233</sup> *Id.*

<sup>234</sup> *Id.*

In reply, the Oglala Sioux Tribe takes issue with both the NRC Staff's and Powertech's assertions that the Oglala Sioux Tribe will be able to propose contentions related to the FSEIS, stating that both parties have "repeated[ly] and vociferous[ly]" opposed each contention the Oglala Sioux Tribe has proposed.<sup>235</sup> Additionally, the Oglala Sioux Tribe relies on the Board's assertion in its August 5, 2010, ruling on its hearing petition, which stated that the Oglala Sioux Tribe would have the opportunity to file new or amended contentions in response to the draft or final SEIS.<sup>236</sup>

With regard to scoping, the Oglala Sioux Tribe states that "a close read of 10 C.F.R. [§§ ] 51.92(d) demonstrates that it does not support NRC Staff's and Powertech's position."<sup>237</sup> The regulation, the Oglala Sioux Tribe explains, is meant to guide NRC Staff's supplemental analysis of EISs.<sup>238</sup> The Oglala Sioux Tribe asserts that the different interpretations of this regulation as it pertains to the NRC Staff's NEPA review warrants a resolution and thus supports the admission of this dispute as framing a legal contention.<sup>239</sup>

## **2. *Board Ruling***

Contention 8 is similar to the Oglala Sioux Tribe's original Contention 8 proposed in relation to the application — "[r]equiring the [Oglala Sioux] Tribe to formulate contentions before an EIS is released violates NEPA."<sup>240</sup> The Board determined that the previously proposed Contention 8 was inadmissible in part because it could be properly characterized as "an impermissible attack on NRC regulations, in contravention of 10 C.F.R. § 2.335."<sup>241</sup> Further, the Board disagreed with the Oglala Sioux Tribe that the NRC's procedures concerning NEPA-related contentions violated the public participation and informed decisionmaking mandates of NEPA.<sup>242</sup> The Board rejects the portions of proposed Contention 8 that are identical to original Contention 8 for the same reasons.

Additionally, the Board rejects the remaining portion of Contention 8 that alleges that improper scoping was conducted. The Board finds that this contention fails to meet the contention admissibility standards because the Oglala Sioux Tribe did not demonstrate that a "genuine dispute exists with the applicant/licensee on

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<sup>235</sup> Oglala Sioux Tribe's Reply at 17.

<sup>236</sup> *Id.* (citing LBP-10-16, 42 NRC at 440).

<sup>237</sup> *Id.*

<sup>238</sup> *Id.* at 17-18 ("The regulation speaks in terms of applicability to a site-specific 'action' and contains no reference to generic environmental impact statements.").

<sup>239</sup> *Id.* at 18.

<sup>240</sup> LBP-10-16, 72 NRC at 436.

<sup>241</sup> *Id.* at 437.

<sup>242</sup> *Id.* at 438.

a material issue of law or fact.”<sup>243</sup> Specifically, as Powertech points out, 10 C.F.R. § 51.26(d) provides that when a supplement to an EIS is prepared, “NRC staff need not conduct a scoping process.”<sup>244</sup> Because the NRC Staff was not required by regulation to engage in the scoping process for the DSEIS, the Oglala Sioux Tribe’s contention lacks a legal basis. The Oglala Sioux Tribe will not be denied the benefit of a full NEPA analysis because the NRC Staff is preparing an FSEIS, and the Oglala Sioux Tribe will have an opportunity to submit contentions based on the FSEIS if appropriate.<sup>245</sup> The Board concludes the NRC Staff was not required by regulation to engage in the scoping process for the SEIS, and therefore the Oglala Sioux Tribe’s contention lacks a legal basis. The NRC Staff prepared the DSEIS in compliance with 10 C.F.R. § 51.92, “Supplement to the Final Environmental Impact Statement.” Under this regulation, “a scoping process need not be used” for a supplemental EIS.<sup>246</sup>

Further, the NRC Staff states that it participated in three public scoping meetings (one in Casper, Wyoming) and eight public meetings to solicit comments on the draft GEIS, including one in Spearfish, South Dakota, which is within the region identified in the GEIS as being home to the proposed Dewey-Burdock project. The NRC Staff states it received and considered hundreds of public comments on the GEIS. The scoping process for the GEIS, which is applicable to Powertech and the Dewey-Burdock project as noted in the DSEIS,<sup>247</sup> satisfies the very scoping requirement about which the Oglala Sioux Tribe complains was disregarded. For this and the above-mentioned reasons, Contention 8 is inadmissible.

## **I. The Oglala Sioux Tribe’s Proposed Contention 9: “The DSEIS Fails to Consider Connected Actions”**

### ***1. Positions of the Parties***

The Oglala Sioux Tribe’s Contention 9 asserts that “the DSEIS fails to consider connected actions” in contravention of 10 C.F.R. §§ 51.10, 51.70, 51.71, and NEPA.<sup>248</sup> Specifically, it contends that the NRC has failed to engage other federal agencies that are considering Powertech’s proposal and, therefore, “has failed to comply with the ‘action-forcing’ mandate and purpose of NEPA.”<sup>249</sup> By way of

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<sup>243</sup> 10 C.F.R. § 2.309(f)(1)(vi).

<sup>244</sup> *Id.* § 51.26(d); *see also* Applicant’s Response at 20.

<sup>245</sup> *Id.* § 2.309(f)(2).

<sup>246</sup> *Id.* § 51.92(d).

<sup>247</sup> DSEIS at 1-5.

<sup>248</sup> Oglala Sioux Tribe’s Proposed Contentions at 33.

<sup>249</sup> *Id.*

example, the Oglala Sioux Tribe points out that Powertech has filed applications with the Environmental Protection Agency (EPA) concerning injection wells associated with the Dewey-Burdock site.<sup>250</sup> However, the Oglala Sioux Tribe argues that the DSEIS fails to conduct a NEPA analysis of the proposed injection wells, the request for which is a “connected action” that requires review pursuant to the mandates of NEPA.<sup>251</sup> But even if this were not considered a “connected action,” the Oglala Sioux Tribe argues, injection wells “must still be fully analyzed in the ‘cumulative impacts’ analysis, or . . . as part of the NRC’s ‘hard look’ review.”<sup>252</sup>

The Oglala Sioux Tribe also takes issue with the DSEIS’s reliance on the EPA’s analysis to support its conclusions regarding environmental impacts.<sup>253</sup> This “blind reliance on other agencies,” the Oglala Sioux Tribe argues, is impermissible — “[t]he DSEIS cannot rely on EPA and South Dakota permitting processes to excuse NRC’s responsibilities to fully review the environmental impacts.”<sup>254</sup>

Finally, the Oglala Sioux Tribe contends that Powertech has mischaracterized a requested permit for an injection well to dispose of chemical waste as Class V, when it is, in fact, a permit for a Class I underground disposal well.<sup>255</sup> The Oglala Sioux Tribe contends that the South Dakota Department of Environment and Natural Resources’ classifications support this.<sup>256</sup> It argues that the class designation is significant because South Dakota prohibits Class I wells and that the DSEIS does not address this issue.<sup>257</sup> Therefore, the Oglala Sioux Tribe asserts that the DSEIS has unlawfully failed to conduct the appropriate analysis of other federal and state permits associated with the project.<sup>258</sup>

In response, the NRC Staff asserts that the Oglala Sioux Tribe fails to address the DSEIS and provides no support for its claim that the DSEIS inadequately addresses Powertech’s applications to the EPA for certain well permits.<sup>259</sup> Additionally, the NRC Staff states that the Oglala Sioux Tribe’s contention does not meet the admissibility standards for new and amended contentions because it is not based on new or materially different information.<sup>260</sup> The NRC Staff argues

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<sup>250</sup> *Id.* at 34.

<sup>251</sup> *Id.*

<sup>252</sup> *Id.*

<sup>253</sup> *Id.* at 35.

<sup>254</sup> *Id.*

<sup>255</sup> *Id.* at 34-35.

<sup>256</sup> *Id.* at 36.

<sup>257</sup> *Id.*

<sup>258</sup> *Id.*

<sup>259</sup> NRC Staff’s Answer at 30-31.

<sup>260</sup> *Id.* at 31.

that the ER discusses the permits Powertech seeks and that the Oglala Sioux Tribe should have raised its contention earlier and in relation to the ER.<sup>261</sup>

The NRC Staff also argues that the contention does not meet the standards set forth in 10 C.F.R. § 2.309(f)(1) because the Oglala Sioux Tribe has not demonstrated that “there is a genuine issue over whether the Staff has adequately consulted with federal agencies during its review of Powertech’s application.”<sup>262</sup> The NRC Staff argues the Oglala Sioux Tribe overlooks the fact that Staff has consulted with various agencies.<sup>263</sup> With regard to the EPA, the NRC Staff argues that “[a]lthough the EPA is not involved as a formal cooperating agency, the NRC has consulted with the EPA to clarify aspects of [its] permitting process as it relates to the Dewey-Burdock project.”<sup>264</sup>

The NRC Staff also takes issue with the Oglala Sioux Tribe’s claim that the DSEIS “blindly relies” on the analyses of other agencies, contending that the Oglala Sioux Tribe has not supported this assertion.<sup>265</sup> The NRC Staff maintains that it has independently analyzed environmental impacts and has appropriately considered the roles of other agencies, both of which are evidenced in the DSEIS.<sup>266</sup>

With regard to the injection wells, the NRC Staff argues that the Oglala Sioux Tribe’s assertions are based on an incomplete reading of the DSEIS.<sup>267</sup> The NRC Staff alleges that Powertech “plans to treat liquid wastes injected into deep disposal wells to meet applicable criteria in 10 C.F.R. Part 20,” which means that the liquid waste may be disposed in Class V wells rather than Class I wells.<sup>268</sup> Relatedly, the NRC Staff argues that the Oglala Sioux Tribe’s assertion with regard to the South Dakota permitting process should be rejected because “it lacks both the specificity and support required by 10 C.F.R. § 2.309(f)(1).<sup>269</sup>

Powertech, too, contends that Contention 9 should fail.<sup>270</sup> Powertech argues that the NRC Staff specifically engaged the Bureau of Land Management as a cooperating agency; that the DSEIS was issued for public comment and the EPA was able to, and did, submit comments regarding groundwater protection; that the DSEIS addresses Class V wells; and that the Oglala Sioux Tribe did “not attempt

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<sup>261</sup> *Id.*

<sup>262</sup> *Id.*

<sup>263</sup> *Id.*

<sup>264</sup> *Id.* at 31-32.

<sup>265</sup> *Id.* at 32.

<sup>266</sup> *Id.*

<sup>267</sup> *Id.* at 33.

<sup>268</sup> *Id.*

<sup>269</sup> *Id.*

<sup>270</sup> Powertech’s Response at 21.

to show how the DSEIS differs from the impact analyses offered by Powertech in previously submitted documents” in contravention of 10 C.F.R. § 2.309(c).<sup>271</sup>

In reply, the Oglala Sioux Tribe asserts that both Powertech’s and the NRC Staff’s arguments relate to the merits of the proceeding and are therefore irrelevant at the contention admissibility stage.<sup>272</sup> Additionally, the Oglala Sioux Tribe notes that “[t]his contention is yet another that the Tribe raised previously, which the Board held inadmissible because it raised NEPA issues that were held inapplicable to the Applicant.”<sup>273</sup> Finally, the Oglala Sioux Tribe notes that NRC Staff’s arguments themselves refute the Staff’s assertion that the contention is not specific enough to satisfy contention admissibility standards because the contention was made with enough specificity that the NRC Staff could, and did, respond in detail.<sup>274</sup>

## **2. *Board Ruling***

Contention 9 is similar to the Oglala Sioux Tribe’s original Contention 9 filed in response to Powertech’s application. At that stage, the Board found that Contention 9 was premature because it is the NRC’s responsibility, not the applicant’s, to consider the actions of other federal agencies involved in the licensing action in the context of NEPA.<sup>275</sup> Therefore, the Board found that this contention would ripen for review only upon the issuance of the DSEIS and that the Oglala Sioux Tribe could raise its contention in relation to the DSEIS if it felt the same deficiencies remained. The Oglala Sioux Tribe believes the same deficiencies remain and, accordingly, filed the pending contention.

This contention is timely because it is based on new and materially different information published in the DSEIS that could not be challenged previously.<sup>276</sup> The issuance of the DSEIS provides the opportunity for intervenors to challenge the adequacy of the NRC Staff’s review, which is mandated by NEPA. The contention was filed within the deadline established by the Board and is timely under the standards set forth in 10 C.F.R. § 2.309(c)(1).

Additionally, this contention meets the admissibility standards of 10 C.F.R. § 2.309(f)(1). The contention presents issues that are material to the issues of this proceeding and it provides specific examples in the DSEIS where the NRC allegedly inappropriately defers to the EPA and South Dakota in determining that

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<sup>271</sup> *Id.*

<sup>272</sup> Oglala Sioux Tribe’s Reply at 18-19.

<sup>273</sup> *Id.* at 18 (citing LBP-10-16, 72 NRC 440).

<sup>274</sup> *Id.* at 19-20.

<sup>275</sup> LBP-10-16, 72 NRC at 440.

<sup>276</sup> See 10 C.F.R. § 2.309(c).

environmental impacts of the proposed project will be small.<sup>277</sup> Additionally, the Oglala Sioux Tribe has described an issue that is within scope of this proceeding, raised specific issues of law and fact, provided an explanation of the basis for the contention, and established that there exists a genuine dispute as to whether or not the NRC Staff has improperly deferred to the EPA and South Dakota in conducting its NEPA analysis. The Oglala Sioux Tribe's Contention 9 is, therefore, admitted.

**J. The Oglala Sioux Tribe's Proposed Contention 10: "The Narrow Scope of the NEPA Process Conducted by NRC Staff Excluded Actions, Alternatives, Impacts and Agencies"**

**1. *Positions of the Parties***

In Contention 10, the Oglala Sioux Tribe asserts that "the narrow scope of the NEPA process conducted by NRC Staff excluded actions, alternatives, impacts, and agencies."<sup>278</sup> More specifically, the Oglala Sioux Tribe asserts that the NRC has failed to engage other relevant federal, state, and local agencies and "has not analyzed impacts subject to jurisdiction and control of these other agencies," and has thus failed to comply with NEPA's action-forcing mandate and general purpose.<sup>279</sup>

The Oglala Sioux Tribe asserts that NEPA requires the agency to consider actions "connected" to the project under review as well as the "cumulative impact." Cumulative impact is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency . . . undertakes such other actions."<sup>280</sup> To satisfy these requirements, NRC must conduct the NEPA process by consulting with "cooperating agencies."<sup>281</sup> The Oglala Sioux Tribe contends that "the unlawfully limited scope and absence of cooperating agencies in the preparation of the DSEIS has omitted these important components of the NEPA process."<sup>282</sup>

As an example of this omission, the Oglala Sioux Tribe asserts that Powertech has filed applications with the EPA for Class III and Class V injection well permits, which the Oglala Sioux Tribe maintains is a connected action.<sup>283</sup> However, the

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<sup>277</sup> Oglala Sioux Tribe's Proposed Contentions at 35.

<sup>278</sup> *Id.* at 36.

<sup>279</sup> *Id.* at 36-37.

<sup>280</sup> *Id.* at 37 (quoting 40 C.F.R. § 1507.7).

<sup>281</sup> *Id.*

<sup>282</sup> *Id.* at 38.

<sup>283</sup> *Id.*

Oglala Sioux Tribe asserts that “the NRC did not invite the EPA to participate in the NEPA analysis of the proposal for these injection wells that is necessary to lawful NEPA analysis.”<sup>284</sup> Additionally, the Oglala Sioux Tribe contends that the NRC Staff has not properly analyzed certain impacts.<sup>285</sup> The omission of this analysis was detailed in comments to the DSEIS that were provided to the NRC Staff on January 10, 2013.<sup>286</sup> The Oglala Sioux Tribe also asserts the DSEIS finds that certain statutory protections are not within the scope of the NEPA analysis, resulting in an “unlawfully narrow scope” of the NEPA review.<sup>287</sup> This, the Oglala Sioux Tribe claims, is compounded by the failure of the NRC to invite cooperating agencies to participate in the NEPA process.<sup>288</sup>

In response, the NRC Staff argues that the Oglala Sioux Tribe’s contention is inadmissible.<sup>289</sup> First, the NRC Staff states, the Oglala Sioux Tribe repeats in Contention 10 arguments made in Contention 9, specifically the DSEIS’s omission of an analysis of the EPA permitting processes and NRC Staff’s alleged failure to consult cooperating agencies.<sup>290</sup> With regard to this piece of Contention 10, NRC Staff cites its response in opposition to Contention 9.<sup>291</sup>

Next, the NRC Staff states that the Oglala Sioux Tribe overlooks sections of the DSEIS and GEIS that contain information concerning the statutory protections the Oglala Sioux Tribe contends have been omitted.<sup>292</sup> Thus, the NRC Staff asserts, the Oglala Sioux Tribe “relies on a blanket claim that the DSEIS lacks required information, failing to address the actual content of the DSEIS and the GEIS.”<sup>293</sup>

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<sup>284</sup> *Id.*

<sup>285</sup> *Id.*

<sup>286</sup> *Id.*

<sup>287</sup> *Id.* at 38-39.

<sup>288</sup> *Id.* at 39.

<sup>289</sup> Staff’s Answer at 34.

<sup>290</sup> *Id.* at 34. Additionally, with regard to the Oglala Sioux Tribe’s argument regarding consultation with cooperating agencies, the NRC Staff asserts that the Oglala Sioux Tribe fails to point to any legal standards requiring the Staff to designate certain agencies as cooperating agencies. *Id.* The NRC Staff also contends that the Oglala Sioux Tribe “overlooks the substantial steps the Staff has taken to engage other agencies in the development of the DSEIS,” including the U.S. Army Corps of Engineers, the U.S. Forest Service, and the South Dakota Department of Environmental and Natural Resources as well as numerous American Indian Tribes. *Id.* at 34-37.

<sup>291</sup> *Id.* at 34.

<sup>292</sup> *Id.*

<sup>293</sup> *Id.* at 35. The NRC Staff also rejects any argument the Oglala Sioux Tribe implicitly makes regarding the Uranium Mill Tailings Radiation Control Act, 42 U.S.C. §§ 7901-7942, which deals with the reclamation and long-term maintenance of uranium mill sites. *Id.* Any arguments the Oglala Sioux Tribe makes with respect to this Act or the actions governed by such must fail, the NRC Staff states, because the Oglala Sioux Tribe ‘fails to show those impacts are within the scope of this proceeding’

(Continued)

Finally, the NRC Staff asserts that the Oglala Sioux Tribe's claim that the DSEIS does not discuss impacts that fall within the jurisdiction of other agencies must fail because the claim should have been raised based on the ER, which, the NRC Staff states, addresses the permits Powertech must obtain from other agencies as well as environmental impacts of the project.<sup>294</sup> Thus, the NRC Staff states that Contention 10 is not based on any new or materially different information.

Powertech argues that Contention 10 should be rejected because the Oglala Sioux Tribe incorrectly claims that the EPA has not been involved in the NEPA review.<sup>295</sup> Powertech states that the EPA submitted extensive comments on previous DSEISs created for other ISR operating license applications and on the DSEIS prepared for the Dewey-Burdock Project.<sup>296</sup> Powertech asserts that the "NRC Staff is not required to formally consult with any party on the preparation of a 10 C.F.R. Part 51 DSEIS; but rather, it makes the document available for public comment from all interested stakeholders."<sup>297</sup> Moreover, Powertech claims that the Oglala Sioux Tribe was aware of the fact that EPA was not invited to be a formal consulting party in this process, and, therefore, this contention is not based on any new or materially different information in violation of the timeliness requirements of 10 C.F.R. § 2.309(c).<sup>298</sup>

Further, Powertech asserts that the Oglala Sioux Tribe's "allegation that the DSEIS omits discussions/analyses on a number of issues is incorrect."<sup>299</sup> Discussions of the relevant issues, it claims, can be found in the DSEIS's table of contents.<sup>300</sup> Therefore, Powertech asserts, Contention 10 must fail.

In reply, the Oglala Sioux Tribe contends that most of Powertech's and NRC Staff's arguments against Contention 10 are based on the underlying merits of the case, which is inappropriate at the contention admissibility stage.<sup>301</sup> Additionally, the Oglala Sioux Tribe asserts that Powertech's argument that there is no legal basis for Contention 10 is incorrect because the Oglala Sioux Tribe set forth "multiple legal bases" for this contention, including "NRC NEPA regulations, relevant

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and, with regard to the reclamation and maintenance of the White Mesa site — an operating uranium mill in Utah — the Oglala Sioux Tribe "fails to show [related impacts] are anything but remote and speculative." *Id.*

<sup>294</sup> *Id.* at 35-36.

<sup>295</sup> Powertech's Response at 22.

<sup>296</sup> *Id.*

<sup>297</sup> *Id.*

<sup>298</sup> *Id.*

<sup>299</sup> *Id.*

<sup>300</sup> *Id.* at 22-23.

<sup>301</sup> Oglala Sioux Tribe's Reply at 19.

federal NEPA case law, NEPA statutory provisions, [and] CEQ regulations.”<sup>302</sup> Therefore, the Oglala Sioux Tribe maintains Contention 10 is admissible.

## **2. Board Ruling**

Contention 10 is overly broad and lacks the specificity necessary to be admitted. For example, the Oglala Sioux Tribe’s first illustration of the DSEIS’s allegedly narrow scope repeats an argument from its original Contention 9 in which it claims the DSEIS fails to address EPA permitting processes. The DSEIS, however, addresses the necessary EPA permits.<sup>303</sup> Based on the Commission’s *Millstone* decision, the Board must reject this argument.<sup>304</sup>

The Oglala Sioux Tribe next argues that the DSEIS improperly excludes impacts in areas covered by numerous federal laws, including the National Historic Preservation Act, the Endangered Species Act, the Safe Drinking Water Act, the Migratory Bird Treaty Act, and the Clean Air Act. The NRC Staff points out that the DSEIS contains the allegedly missing information.<sup>305</sup> Consultations under the NHPA and the Endangered Species Act appear in DSEIS §§ 1.7.1, 1.7.2, and 1.7.3.5. Environmental impacts in areas covered by these two statutes are addressed in DSEIS §§ 4.6.1 and 4.9.1. The Safe Drinking Water Act is addressed when the underground injection process and the protection of aquifers at ISR facilities is discussed in GEIS § 1.7.2.1 and DSEIS §§ 2.1.1.1.2.3.1 and 2.1.1.1.4. The NRC Staff also discusses the application of Safe Drinking Water Act provisions to groundwater resources at the Dewey-Burdock Project in DSEIS § 4.5.2.1. The Migratory Bird Treaty Act is addressed in DSEIS § 4.6, and the Clean Air Act is referenced in GEIS § 1.7.2.2 and DSEIS §§ 3.7.2 and 4.7. Therefore, these portions of this contention of omission are moot and fail under 10 C.F.R. § 2.309(f)(1)(vi) because they are addressed in the DSEIS and the Oglala Sioux Tribe has not challenged the substance of these discussions.

Finally, the Oglala Sioux Tribe argues that in preparing the DSEIS the NRC Staff improperly failed to invite other government agencies to participate as cooperating agencies. This argument is a variant of Contention 9, where the Oglala Sioux Tribe argues that the NRC Staff failed to consider impacts within the jurisdiction of other agencies. The Oglala Sioux Tribe does not point to any legal standard requiring that the NRC Staff enlist specific agencies as cooperating agencies. The regulation cited by the Oglala Sioux Tribe, 10 C.F.R. § 51.10,

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<sup>302</sup> *Id.* at 19 (citing Oglala Sioux Tribe’s Proposed Contentions at 37-38).

<sup>303</sup> See DSEIS § 2.1.1.1.2.3.1.

<sup>304</sup> *Millstone*, CLI-01-24, 54 NRC at 358 (“The intervenor must do more than submit ‘bald or conclusory allegation[s]’ of a dispute with the applicant.” (alteration in original)).

<sup>305</sup> Staff’s Answer at 34-35.

specifically reserves the NRC's right to prepare an independent EIS whenever the NRC has regulatory authority over an activity.

Moreover, the contention overlooks the steps the NRC Staff has taken to engage other agencies in the development of the DSEIS. Chapter 1 of the DSEIS states that the NRC and BLM are working as cooperating agencies to evaluate the environmental impacts of the Dewey-Burdock Project. Section 1.7.3 of the DSEIS provides summaries of the NRC Staff's interactions with other agencies and organizations, including the U.S. Army Corps of Engineers, the U.S. Forest Service, the U.S. Geological Survey, the South Dakota Department of Environment and Natural Resources, the South Dakota State Historic Preservation Office, the Edgemont Area Chamber of Commerce, and Custer County Planning and Economic Development. This contention is therefore inadmissible for its failure to satisfy section 2.309(f)(1)(vi), which requires that an intervenor demonstrate that a genuine dispute exists on a material issue of law or fact.

## **K. The Oglala Sioux Tribe's Proposed Contention 11: "The DSEIS Fails to Adequately Analyze Cumulative Impacts"**

### ***I. Positions of the Parties***

In Contention 11, the Oglala Sioux Tribe argues that "the DSEIS fails to adequately analyze cumulative impacts associated with the Dewey-Burdock proposal as required by 10 C.F.R. §§ 51.10, 51.70, and 51.71, and [NEPA]."<sup>306</sup> This contention is similar to the Oglala Sioux Tribe's initial Contention 7, which was ruled inadmissible.<sup>307</sup> To support the present contention, the Oglala Sioux Tribe discusses the cumulative impact requirement, stating that, in the mining context, "a [NEPA] analysis of cumulative impacts must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment."<sup>308</sup> This requirement, the Oglala Sioux Tribe claims, "prevents agencies from undertaking a piecemeal review of environmental impacts."<sup>309</sup>

Here, the Oglala Sioux Tribe asserts that Powertech has included in its application the proposal to use the Dewey-Burdock plant in the future to receive and process uranium from other proposed projects, ISL operators, and licensed

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<sup>306</sup> Oglala Sioux Tribe's Proposed Contentions at 40.

<sup>307</sup> LBP-10-16, 72 NRC at 432-35.

<sup>308</sup> Oglala Sioux Tribe's Proposed Contentions at 40 (alteration in original) (quoting *Te-Moak Tribe of Western Shoshone*, 608 F.3d 592, 603 (9th Cir. 2010)).

<sup>309</sup> *Id.* at 41 (citing *Earth Island Institute v. U.S. Forest Service*, 351 F.3d 1291, 1306-07 (9th Cir. 2006)).

facilities.<sup>310</sup> However, the Oglala Sioux Tribe contends that the “DSEIS mentions these mining projects only briefly in the ‘affected environment’ portion of the document with no analysis of the impacts.”<sup>311</sup> The Oglala Sioux Tribe asserts this is insufficient and claims that other mining developments in the region must be evaluated.<sup>312</sup> Additionally, the Oglala Sioux Tribe specifically states that cumulative impacts must be assessed with regard to what the Oglala Sioux Tribe views as well-documented soil and groundwater contamination from the Black Hills Ordnance Depot.<sup>313</sup> Specifically, the Oglala Sioux Tribe asserts a “competent cumulative impact analysis must address potential exacerbation of ground water contamination associated with chemicals from the Depot caused by the proposed Dewey-Burdock project.”

In response, the NRC Staff argues that this contention is inadmissible. It states that, in addition to the portion of the DSEIS cited by the Oglala Sioux Tribe, chapter 5 of the DSEIS contains the NRC Staff’s analysis of the cumulative impacts “from past, present, and reasonably foreseeable uranium recovery actions in the vicinity of the Dewey-Burdock Project.”<sup>314</sup> Because the Oglala Sioux Tribe did not address chapter 5 and its contents, NRC Staff argues Contention 11 must be rejected.<sup>315</sup>

Additionally, the NRC Staff argues that, although the DSEIS does not address the Black Hills Ordnance Depot or the Bear Lodge rare earth minerals mine, which is a second project the Oglala Sioux Tribe contends has not been adequately analyzed, the Oglala Sioux Tribe has not identified any new or materially different information on which this portion of its contention is based.

Powertech also argues that the Oglala Sioux Tribe’s Contention 11 is inadmissible.<sup>316</sup> Specifically, Powertech states that the portion of the contention concerning past uranium mining should have been filed in response to its RAI responses that address potential impacts from historical mining and exploration drilling and that the time for doing so has lapsed.<sup>317</sup>

Powertech also asserts that the Oglala Sioux Tribe’s contention is factually incorrect in two ways. First, Powertech states that the DSEIS addresses relevant ISR operations in its discussion of cumulative impacts, specifically noting the Edgemont Uranium District and the Cameco Crow Butte facility.<sup>318</sup> Second,

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<sup>310</sup> *Id.* at 42 (citing Application at 1-25).

<sup>311</sup> *Id.*

<sup>312</sup> *Id.*

<sup>313</sup> *Id.* at 42.

<sup>314</sup> Staff’s Answer at 38.

<sup>315</sup> *Id.*

<sup>316</sup> See Powertech’s Response at 23-24.

<sup>317</sup> *Id.* at 23.

<sup>318</sup> *Id.*

Powertech states that the DSEIS recognizes that Powertech has not indicated that it will move forward with its nearby proposed mining facilities. Powertech contends that even if these facilities are completed, it has not indicated with certainty that it will employ the Dewey-Burdock site for processing.<sup>319</sup>

Finally, Powertech makes an argument similar to the NRC Staff's, noting that, with regard to two specific facilities — the Bear Lodge rare earths minerals mine and the Black Hills Ordnance Depot — the Oglala Sioux Tribe has not demonstrated that its contention is based on new or materially different information.<sup>320</sup>

In its reply in support of Contention 11, the Oglala Sioux Tribe argues that the NRC Staff's and Powertech's arguments are "inappropriately timed merits arguments."<sup>321</sup> Additionally, the Oglala Sioux Tribe argues that, "rather than showing that the DSEIS made a cumulative analysis, the only reference NRC Staff or Powertech points to is a single statement in the cumulative impacts analysis that states that NRC Staff declined to review the impacts from the activities that form the basis of the Tribe's cumulative impacts argument," namely the two other facilities Applicant has proposed.<sup>322</sup>

Finally, the Oglala Sioux Tribe urges the Board to reject Powertech's and the NRC Staff's argument that it should have filed this contention based on Powertech's RAI responses.<sup>323</sup> The Oglala Sioux Tribe argues that the Board stated that NEPA imposes obligations on the agency, not on the applicant, and, therefore, allegations of NEPA violations do not ripen until the issuance of the NRC Staff's environmental documents.<sup>324</sup> This contention, the Oglala Sioux Tribe asserts, is based solely on NEPA and was, therefore, not ripe for review until the issuance of the DSEIS.<sup>325</sup>

## **2. *Board Ruling***

Although this contention was timely raised as a challenge to the DSEIS, it is inadmissible because it does not provide sufficient information to show a genuine dispute exists on a material issue of law or fact.<sup>326</sup> There is no support for the allegation that cumulative impacts were not considered in the DSEIS. To the contrary, chapter 5 of the DSEIS contains the NRC Staff's analysis of the cumulative impacts "from past, present, and reasonably foreseeable uranium

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<sup>319</sup> *Id.* at 23-24.

<sup>320</sup> *Id.* at 24.

<sup>321</sup> Oglala Sioux Tribe's Reply at 19.

<sup>322</sup> *Id.* at 19.

<sup>323</sup> *Id.* at 20.

<sup>324</sup> *Id.*

<sup>325</sup> *Id.*

<sup>326</sup> See 10 C.F.R. § 2.309(f)(1)(vi).

recovery actions in the vicinity of the Dewey-Burdock Project.”<sup>327</sup> Because the Oglala Sioux Tribe did not address chapter 5 and its contents, the Board cannot admit Contention 11 based on this contention’s failure to meet the requirements of 10 C.F.R. §§ 2.309(f)(1)(i), (vi).

#### **L. The Oglala Sioux Tribe’s Proposed Contention 12: “The DSEIS Fails to Consider All Reasonable Alternatives”**

##### ***1. Positions of the Parties***

The Oglala Sioux Tribe contends that “the DSEIS fails to adequately analyze all reasonable alternatives as required by 10 C.F.R. §§ 51.10, 51.70, and 51.71, and [NEPA].”<sup>328</sup> The Oglala Sioux Tribe asserts that, pursuant to NEPA, agencies must analyze alternatives to proposed federal actions.<sup>329</sup> With regard to the proposed Dewey-Burdock Project, the Oglala Sioux Tribe claims that “[n]umerous unexplored and unreviewed alternatives exist.”<sup>330</sup> Specifically, the Oglala Sioux Tribe states that the NRC Staff should consider (1) “an alternative that precludes adoption of any Alternate Concentration Limits . . . for ground water restoration,” (2) an alternative that would prevent a proponent from mining additional well fields until it has demonstrated that it has operated without excursions and that previously mined well fields have been restored, (3) an alternative of permitting operation of either the Dewey or Burdock sites only once the proponent has shown that the other area has been mined without excursion and with restoration, and (4) an alternative of prohibiting “any extraction from aquifers, or portions of aquifers, for which the applicant has not yet demonstrated confined conditions.”<sup>331</sup>

In response to this contention, the NRC Staff argues that the Oglala Sioux Tribe’s arguments are not timely.<sup>332</sup> Specifically, the NRC Staff states that the ER addresses alternatives to the proposed action, mitigation measures, and groundwater monitoring.<sup>333</sup> The NRC Staff asserts that Contention 12 should have been filed within 30 days of the issuance of the ER and is not based on any new or materially different information in contravention of 10 C.F.R. § 2.309(c).<sup>334</sup>

With regard to the Oglala Sioux Tribe’s first suggestion that Alternate Concentration Limits (ACLs) be prohibited, the NRC Staff argues that the Oglala Sioux

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<sup>327</sup> Staff’s Answer at 38.

<sup>328</sup> Oglala Sioux Tribe’s Proposed Contentions at 43.

<sup>329</sup> *Id.*

<sup>330</sup> *Id.* at 44.

<sup>331</sup> *Id.*

<sup>332</sup> Staff’s Answer at 39.

<sup>333</sup> *Id.*

<sup>334</sup> *Id.* at 40.

Tribe “overlooks the very purpose of [ACLs], which is to address situations where restoring groundwater to baseline conditions . . . would not be practicable.”<sup>335</sup> The second and third proposals, the NRC Staff asserts, “would require a licensee to suspend ISR operations for at least one year and likely longer,” and the Oglala Sioux Tribe does not address whether this is feasible for all ISR operations or for the Dewey-Burdock site.<sup>336</sup> Regarding the fourth alternative, the NRC Staff argues that “the [Oglala Sioux] Tribe overlooks that such a license condition has already been proposed,” specifically license condition 10.10.B.<sup>337</sup> With respect to the other arguments, the NRC Staff asserts that the Oglala Sioux Tribe “fails to show there is a genuine issue as to whether the alternative mitigation measures it identifies are feasible.”<sup>338</sup> Overall, the NRC Staff argues that the Oglala Sioux Tribe has not demonstrated “a genuine issue as to whether the alternative mitigation measures it identifies are feasible.”<sup>339</sup>

Powertech also asserts that Contention 12 is inadmissible. To support its assertion, Powertech first argues that the contention is premature because the DSEIS is not the final version of the NRC’s environmental review.<sup>340</sup> Powertech states that, if appropriate, the Oglala Sioux Tribe can challenge the NRC’s final analyses when the FSEIS is issued.<sup>341</sup> Additionally, Powertech argues that the NRC Staff need only analyze “reasonable” alternatives, and the Oglala Sioux Tribe has not distinguished reasonable alternatives from unreasonable ones.<sup>342</sup>

With specific regard to the Oglala Sioux Tribe’s proposed alternative that ACLs be prohibited, Powertech argues that ACLs are a legal right under 10 C.F.R. Part 40, Appendix A, Criterion 5B(5) and, therefore, the Oglala Sioux Tribe’s argument is an impermissible collateral attack on a regulation.<sup>343</sup> Finally, Powertech argues that Contention 12 is not based on information that is new or materially different from the ER.<sup>344</sup>

In reply to these arguments, the Oglala Sioux Tribe urges the Board to reject the NRC Staff’s argument that Contention 12 is too late and Powertech’s argument that it is too early.<sup>345</sup> Rather, the Oglala Sioux Tribe asserts, the contention is based on the NRC’s analysis of alternatives that “was only put forth publicly upon

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<sup>335</sup> *Id.* at 41.

<sup>336</sup> *Id.*

<sup>337</sup> *Id.* at 40.

<sup>338</sup> *Id.*

<sup>339</sup> *Id.*

<sup>340</sup> Powertech’s Response at 25.

<sup>341</sup> *Id.*

<sup>342</sup> *Id.*

<sup>343</sup> *Id.* at 25-26.

<sup>344</sup> *Id.* at 26.

<sup>345</sup> Oglala Sioux Tribe’s Reply at 20.

the issuance of the DSEIS.”<sup>346</sup> The Oglala Sioux Tribe claims that its contention concerns whether the NRC Staff fulfilled its NEPA obligations, a question that is ripe for review at this time.<sup>347</sup> Moreover, the Oglala Sioux Tribe states that the NRC Staff’s and Powertech’s arguments that the alternatives the Oglala Sioux Tribe suggested were not reasonable are merits arguments that are inappropriately raised at the contention admissibility stage.<sup>348</sup>

## 2. *Board Ruling*

The NRC Staff argues this contention is filed too late.<sup>349</sup> Powertech argues this contention was filed too early and is not yet ripe for consideration.<sup>350</sup> Both the NRC Staff and Powertech are incorrect. This contention has been timely filed. It addresses issues that arise from the DSEIS that could not have been raised at an earlier stage of the proceeding. It is also in conformance with the scheduling order in this case.<sup>351</sup>

This contention is inadmissible, however, because it does not meet the standards in section 2.309(f)(1). It is insufficient for the Oglala Sioux Tribe simply to allege that “numerous unexplored and unreviewed alternatives exist.”<sup>352</sup> The Oglala Sioux Tribe fails to show there is a genuine issue as to whether the alternative mitigation measures it identifies are feasible. Under NEPA, an agency need not discuss alternatives that are “infeasible, ineffective, or inconsistent with the basic policy objectives for the management of the area.”<sup>353</sup> An alternative might not be feasible for a variety of reasons, including a failure of the alternative to meet the project’s purpose and need.<sup>354</sup> Here, the Oglala Sioux Tribe proposes that the NRC impose a license condition prohibiting the use of ACLs. This pro-

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<sup>346</sup> *Id.*

<sup>347</sup> *Id.* at 21.

<sup>348</sup> *Id.*

<sup>349</sup> Staff’s Answer at 39.

<sup>350</sup> Powertech’s Response at 25.

<sup>351</sup> Order (Second Prehearing Conference Call Summary and Supplemental Initial Scheduling Order) (Oct. 16, 2012) at 3-4 (unpublished).

<sup>352</sup> Oglala Sioux Tribe’s Proposed Contentions at 44.

<sup>353</sup> *Northern Alaska Environmental Center v. Kempthorne*, 457 F.3d 969, 978 (9th Cir. 2006) (quotation marks and internal citations omitted); see also *Fuel Safe Washington v. Federal Energy Regulatory Commission*, 389 F.3d 1313, 1323 (10th Cir. 2004) (holding that an “agency need not analyze the ‘environmental consequences of alternatives it has in good faith rejected as too remote, speculative, or . . . impractical or ineffective.’” (quoting *All Indian Pueblo Council v. United States*, 975 F.2d 1437, 1444 (10th Cir. 1992))).

<sup>354</sup> *Exelon Generation Co.* (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 806 (2005) (excluding an energy efficiency alternative because it would not advance the applicant’s goals), aff’d, *Environmental Law and Policy Center v. NRC*, 470 F.3d 676 (7th Cir. 2006).

posal overlooks the very purpose of ACLs, which is to address situations where restoring groundwater to baseline conditions or MCLs would not be practicable.<sup>355</sup> The Oglala Sioux Tribe must show that a particular alternative was not discussed in the DSEIS and provide some support that the alternative is reasonable.<sup>356</sup> The Oglala Sioux Tribe has not done this and therefore Contention 12 is inadmissible.

#### **M. The Oglala Sioux Tribe’s Proposed Contention 13: “Failure to Take a Hard Look at Impacts Associated with Air Emissions and Liquid Waste”**

##### *1. Positions of the Parties*

The Oglala Sioux Tribe contends that the DSEIS fails to take a “hard look” at impacts of the proposed mine related to air emissions and liquid waste disposal in violation of 10 C.F.R. §§ 51.10, 51.70, 51.71, and NEPA.<sup>357</sup> With regard to air emissions, the Oglala Sioux Tribe asserts that “the DSEIS lacks current and confirmed information on air emissions and their impacts on various ‘receptors’ in the region,” including “people, plants, animals, water bodies, soil, [and] National Parks.”<sup>358</sup> Specifically, the Oglala Sioux Tribe argues that the modeling employed in the DSEIS is inadequate because it is based on information provided by the applicant that has since been revised.<sup>359</sup> Instead, the Oglala Sioux Tribe contends, the NRC Staff should have delayed the DSEIS and permitted Powertech to provide updated information. Having failed to do so, the Oglala Sioux Tribe asserts that the DSEIS should be reissued for public review and comment.<sup>360</sup>

The Oglala Sioux Tribe maintains that the same deficiencies affect the air impacts analysis.<sup>361</sup> Specifically, the Oglala Sioux Tribe argues that “an emission inventory for PM2.5 particulate emissions, to which radioactive elements may attach and be dispersed via regional dispersion, were not available and were not considered in the DEIS dispersion modeling.”<sup>362</sup> The Oglala Sioux Tribe also takes issue with the DSEIS’s reliance on “Powertech’s ‘commitment’ to provide

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<sup>355</sup> See 10 C.F.R. Part 40, Appendix A, Criterion 5B(5). Criterion 5B(5) prescribes three alternative standards for groundwater restoration at ISR facilities: (1) background concentrations, (2) maximum values from chart 5C, or (3) an ACL.

<sup>356</sup> *Union Electric Co.* (Callaway Plant, Unit 1), LBP-12-15, 76 NRC 14, 36 (2012). *See, e.g., NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 341 (2012), *petition for review filed sub nom. Beyond Nuclear v. NRC*, No. 12-1561 (1st Cir. May 7, 2012).

<sup>357</sup> Oglala Sioux Tribe’s Proposed Contentions at 44.

<sup>358</sup> *Id.* at 45.

<sup>359</sup> *Id.*

<sup>360</sup> *Id.* at 46.

<sup>361</sup> *Id.*

<sup>362</sup> *Id.* (citing DSEIS at C-16).

accurate and useful information on air emissions in a final SEIS,” claiming that this does not satisfy the NRC’s obligations under NEPA.<sup>363</sup> It further argues that there are methodological flaws in the DSEIS’s analysis of the impact of wind, including wind storms and tornadoes.<sup>364</sup> These deficiencies, it states, contribute to unresolved questions of radioactive contamination.<sup>365</sup>

Additionally, the Oglala Sioux Tribe argues that “the DSEIS states that the applicant proposes to rely on Reverse Osmosis (RO) for treatment of its liquid wastes,” but fails to review the quality, extent, or impacts of the disposed waste or the potential limitations and failings of the RO process.<sup>366</sup> The Oglala Sioux Tribe also asserts that, in violation of NEPA and NRC regulations, the DSEIS “fails to adequately address disposal options should the Class V Underground Injection Control permit be denied.”<sup>367</sup> Finally, with regard to waste, the Oglala Sioux Tribe argues that the DSEIS does not adequately address water treatment proposals and it “does not detail any information regarding plans should the un-reviewed water treatment plan not perform as expected.”<sup>368</sup>

The last part of Contention 13 alleges that “the DSEIS fails to properly account for impacts to wildlife resulting from land application of ISL wastes.”<sup>369</sup> Specifically, the Oglala Sioux Tribe notes that the DSEIS does not address the risks of selenium contamination resulting from ISL waste disposal through land application that the Fish and Wildlife Service has identified.<sup>370</sup> This results in an incomplete review violative of NEPA’s “hard look” requirement.<sup>371</sup>

In response, the NRC Staff asserts that the portion of Contention 13 related to the air emissions model in the DSEIS is based on an incomplete reading of the DSEIS.<sup>372</sup> The Oglala Sioux Tribe, NRC Staff argues, overlooks the fact that the DSEIS addresses the new information Powertech issued regarding air emissions.<sup>373</sup> According to the NRC Staff, because the Oglala Sioux Tribe did not directly challenge the information relevant to its argument, the Oglala Sioux Tribe’s assertions in this regard must be rejected.<sup>374</sup> Even had the Oglala Sioux Tribe challenged the new information, the NRC Staff contends, the challenge

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<sup>363</sup> *Id.* at 47.

<sup>364</sup> *Id.*

<sup>365</sup> *Id.*

<sup>366</sup> *Id.* at 48 (citing DSEIS at 3-105).

<sup>367</sup> *Id.* at 49.

<sup>368</sup> *Id.*

<sup>369</sup> *Id.* at 50.

<sup>370</sup> *Id.*

<sup>371</sup> *Id.*

<sup>372</sup> Staff’s Answer at 42.

<sup>373</sup> *Id.*

<sup>374</sup> *Id.*

would be untimely because the information was available prior to the issuance of the DSEIS.<sup>375</sup>

The NRC Staff argues that the portions of Contention 13 concerning wind are inadmissible for failing to meet the requirement that new or amended contentions filed after the initial deadline be based on new or materially different information.<sup>376</sup> Information regarding wind and the issues derived therefrom, the NRC Staff contends, was available in the ER and in a 2011 submission from Powertech to the NRC.<sup>377</sup> Moreover, the Oglala Sioux Tribe specifically states that the potential impacts of tornadoes were not properly assessed in the DSEIS, an argument the Staff asserts was already raised and rejected by the Board in its ruling on the Oglala Sioux Tribe's initial hearing petition.<sup>378</sup> The Staff notes also that the Oglala Sioux Tribe fails to demonstrate why Powertech's submission of new data with regard to air emissions contravenes NEPA.<sup>379</sup> Moreover, the NRC Staff notes that it explained in the DSEIS that new data could emerge that affects its analysis.<sup>380</sup> There is no error, the NRC Staff asserts, in its basing the data in the DSEIS on information available at the time of its production.<sup>381</sup>

With regard to liquid waste disposal, the NRC Staff states that the information the Oglala Sioux Tribe claims is missing can be found both in Powertech's ER and the GEIS, which discusses the RO process, impacts on groundwater, and other relevant processes.<sup>382</sup> The NRC Staff claims that the information from Dr. Moran that the Oglala Sioux Tribe cites as support for this contention, "neither addresses this information nor explains how the information in the DSEIS is new or materially different from that in the GEIS or [ER]."<sup>383</sup> Additionally, the NRC Staff asserts that the DSEIS does account for impacts were the EPA to deny Powertech's request for a Class V Underground Injection Control permit.<sup>384</sup>

With regard to the portion of Contention 13 dealing with impacts to wildlife, the NRC Staff argues that the U.S. Fish and Wildlife Service report on which the Oglala Sioux Tribe relies was released in 2007.<sup>385</sup> Therefore, the Staff contends,

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<sup>375</sup> *Id.*

<sup>376</sup> *Id.*

<sup>377</sup> *Id.* at 42-43.

<sup>378</sup> *Id.* at 43.

<sup>379</sup> *Id.*

<sup>380</sup> *Id.*

<sup>381</sup> *Id.*

<sup>382</sup> *Id.*

<sup>383</sup> *Id.* at 44.

<sup>384</sup> *Id.*

<sup>385</sup> *Id.*

this information was previously available and the Oglala Sioux Tribe should have submitted its arguments as challenges to the ER.<sup>386</sup>

Powertech, too, argues against the admission of Contention 13. With regard to the air emissions modeling argument, Powertech asserts that the Oglala Sioux Tribe does not demonstrate that its contention is based on new or materially different information.<sup>387</sup> Moreover, Powertech argues that if the Oglala Sioux Tribe was dissatisfied with the plan for Powertech to submit a final corrected inventory prior to the issuance of the FSEIS, the Oglala Sioux Tribe should have proposed a new contention noting such a disagreement prior to January 2013.<sup>388</sup>

Regarding the Oglala Sioux Tribe's concerns with wind data, Powertech argues that the FSEIS will include an appropriate and comprehensive model.<sup>389</sup> Additionally, Powertech states that the Oglala Sioux Tribe did not demonstrate that it is disputing information that is new or materially different from the license application, RAI responses, and other relevant parts of the record.<sup>390</sup> Moreover, to the degree that the Oglala Sioux Tribe took issue with the DSEIS's alleged failure to discuss foreseeable impacts related to major windstorms, Powertech asserts that this information is contained in its technical review and that the Oglala Sioux Tribe has not shown that this portion of Contention 13 is based on any new or materially different information.<sup>391</sup>

Powertech makes the same argument with regard to the Oglala Sioux Tribe's allegations regarding liquid waste disposition, namely that the Oglala Sioux Tribe has not demonstrated that this claim is based on new or materially different information as required by 10 C.F.R. § 2.309(c).<sup>392</sup> Relevant information, Powertech asserts, can be found in the GEIS.<sup>393</sup>

Finally, Powertech argues that the portions of the Oglala Sioux Tribe's contention regarding water quality and water treatment are not based on new or materially different information because these issues are addressed in Powertech's technical review RAI response.<sup>394</sup> Additionally, Powertech states that it is developing a plan regarding impacts to wildlife, the completed version of which the Oglala Sioux Tribe can challenge at a later time.<sup>395</sup> For these reasons, Powertech urges the Board to reject this contention.

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<sup>386</sup> *Id.* at 44-45.

<sup>387</sup> Powertech's Response at 26.

<sup>388</sup> *Id.* at 26-27.

<sup>389</sup> *Id.* at 27.

<sup>390</sup> *Id.*

<sup>391</sup> *Id.* at 28.

<sup>392</sup> *Id.*

<sup>393</sup> *Id.*

<sup>394</sup> *Id.*

<sup>395</sup> *Id.*

In its reply in support of its contention, the Oglala Sioux Tribe maintains that it has asserted an admissible contention.<sup>396</sup> It notes that NRC Staff's and Powertech's assertions that the contention is not timely because it is not based on new or materially different information should be rejected because "NRC Staff and Powertech ignore the holdings of this Board that contentions based solely on violations of NEPA are not ripe based on the application materials alone."<sup>397</sup>

## **2. *Board Ruling***

The Oglala Sioux Tribe argues that this is a contention of omission.<sup>398</sup> It states that the DSEIS addresses neither the quality of liquid wastes nor the impacts from their disposal. It also alleges the air modeling data cited in the DSEIS is flawed and a more detailed inventory of particulate emissions is necessary. Although this contention of omission is timely raised, it is nevertheless inadmissible because it does not meet the contention admissibility standards of § 2.309(f)(1).

As to the air emissions model, the Oglala Sioux Tribe's contention was timely because the revised mobile source inventory used to model air emissions first appeared in the DSEIS. It is irrelevant that it was based on data submitted to the Staff in July 2012. The use of the Powertech submission by the NRC Staff first occurred in the DSEIS. Contention 13 is not based on the 2012 RAI response, but is instead based on the fact that, in 2013, the DSEIS relied upon it. Although intervenors must respond to new information when it first becomes available, they need not do so until the information is actually used by the NRC Staff to form its conclusions on impacts in the DSEIS.

As to the assertion in this contention that the DSEIS omits analysis of air emissions, the Oglala Sioux Tribe overlooks section 4.7.1 and section C.2.1 of the DSEIS that describe the differences between the initial and revised emission inventory. The Oglala Sioux Tribe does not acknowledge the new inventory and argues that the prior inventory needs to be supplemented. Further, the Oglala Sioux Tribe's challenges to the DSEIS's sections discussing wind speed, wind direction, tornadoes, and other wind events are untimely because the Oglala Sioux Tribe fails to explain what information in these sections is new and how it is materially different from information previously available. The Board notes that the Oglala Sioux Tribe's original tornado contention (Contention 10) was rejected in LBP-10-16.<sup>399</sup>

The Oglala Sioux Tribe relies on Dr. Moran's Supplemental Declaration with

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<sup>396</sup> Oglala Sioux Tribe's Reply at 21.

<sup>397</sup> *Id.*

<sup>398</sup> Oglala Sioux Tribe's Proposed Contentions at 45.

<sup>399</sup> LBP-10-16, 72 NRC at 440-42.

regard to the liquid waste disposal issue.<sup>400</sup> This portion of the contention is inadmissible, however, because the information allegedly missing is contained in the GEIS. The GEIS discusses the RO process and related chemical processes (section 2.5.3), the use of reverse osmosis in aquifer applications (sections 2.5, 4.2, 4.3, 4.5), impacts on groundwater and waste management (sections 4.2.12.2, 4.2.4.2, 4.3.4.2.3), and recovery rates for treated water reused as permeate (sections 2.5.3 and 4.3.4.2.3). Because the Oglala Sioux Tribe fails to address information in the DSEIS and GEIS that is relevant to the issue it raises, the Board must reject the Oglala Sioux Tribe's arguments relating to liquid waste disposal.<sup>401</sup>

The Oglala Sioux Tribe further argues that the DSEIS fails to account for impacts if the EPA denies Powertech's application for a Class V Underground Injection Control permit. This is incorrect, however, because the DSEIS states that if Powertech's Class V application is denied, "the applicant would need to rely solely on land application disposal methods or seek an NRC amendment to approve another disposal option before it initiated operations."<sup>402</sup> The DSEIS next discusses alternative wastewater disposal methods, including evaporation ponds and discharge to surface waters.<sup>403</sup> The DSEIS thus summarizes impacts from these alternative methods and refers to the GEIS, which further discusses these alternatives.<sup>404</sup> For these reasons, the Oglala Sioux Tribe's arguments regarding the admissibility of its Class V permit denial concerns must be rejected.

Accordingly, for the reasons discussed above, the Board finds that the entirety of Contention 13 is inadmissible.

**N. The Oglala Sioux Tribe's Proposed Contention 14: "The DSEIS Fails to Comply with NEPA with Regard to Impacts on Wildlife, and Fails to Comply with the Endangered Species Act and Migratory Bird Treaty Act"**

**I. Positions of the Parties**

The Oglala Sioux Tribe's Contention 14 alleges that "[t]he DSEIS violates 10 C.F.R. §§ 51.10, 51.70, 51.71, and [NEPA] . . . and the Endangered Species

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<sup>400</sup> See Oglala Sioux Tribe's Proposed Contentions at 45 (citing Oglala Sioux Tribe's Proposed Contentions, Exh. 2, Supplemental Declaration of Dr. Robert E. Moran (Jan. 24, 2013) ¶¶ 52-53, 99-100).

<sup>401</sup> Millstone, CLI-01-24, 54 NRC at 358.

<sup>402</sup> DSEIS at 2-54.

<sup>403</sup> DSEIS §§ 2.1.1.2.1, 2.1.1.2.2; DSEIS tbl. 2.1-8.

<sup>404</sup> For example, the GEIS discusses impacts associated with evaporation ponds and surface water discharge in sections 4.4.3.1, 4.4.3.2, and 4.4.4.1. Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities, NUREG-1910 (May 2009).

Act . . . by failing to conduct the required ‘hard look’ analysis at impacts of the proposed mine and . . . by failing to consult as required with the U.S. Fish and Wildlife Service.”<sup>405</sup> In support of this contention, the Oglala Sioux Tribe cites the supplemental declaration of Dr. Moran.<sup>406</sup>

The Oglala Sioux Tribe asserts that section 7 of the Endangered Species Act “requires that agencies ‘conference’ with the [Fish and Wildlife Service] on any action that is ‘likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat.’”<sup>407</sup> In this instance, the Oglala Sioux Tribe argues that “section 7 consultation was not completed, and impacts to imperiled species were not analyzed and reviewed.”<sup>408</sup> The Oglala Sioux Tribe recognizes that certain species, including the greater sage grouse, have been identified in the DSEIS as a candidate species under the Endangered Species Act.<sup>409</sup> Despite this, the Oglala Sioux Tribe asserts, the DSEIS contains no NEPA analysis of the impacts to the greater sage grouse and “ignore[s] the studies and draft recommendations” relevant to this species that the Fish and Wildlife Service have issued.<sup>410</sup> “The result,” the Oglala Sioux Tribe declares, “is that the DSEIS fails to provide the required analysis of the conservation objectives that could be adopted to protect the imperiled greater sage grouse, and its habitat.”<sup>411</sup>

The Oglala Sioux Tribe also asserts that the DSEIS inappropriately concludes that “whooping cranes will not likely occur at the proposed site” despite the Fish and Wildlife Service’s finding that they are expected to be found there.<sup>412</sup> The NRC Staff, the Oglala Sioux Tribe claims, has not sought consultation with the Fish and Wildlife Service.<sup>413</sup> When an agency’s conclusions are different from the Fish and Wildlife Service’s in this regard, the Oglala Sioux Tribe asserts, the agency must clearly articulate its reasons for disagreement.<sup>414</sup> This, the Oglala Sioux Tribe states, the NRC has not done.

The Oglala Sioux Tribe next argues that “[t]he DSEIS . . . forwards an unreasonably bounded analysis regarding the [b]lack-footed ferret” by concluding that construction would not affect current or future ferret populations because these species “are not present in the site vicinity” and that a nearby black-tailed

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<sup>405</sup> Oglala Sioux Tribe’s Proposed Contentions at 50.

<sup>406</sup> *Id.* at 51.

<sup>407</sup> *Id.* (citing 50 C.F.R. § 402.10(a)).

<sup>408</sup> *Id.* at 53.

<sup>409</sup> *Id.*

<sup>410</sup> *Id.*

<sup>411</sup> *Id.*

<sup>412</sup> *Id.* at 54.

<sup>413</sup> *Id.*

<sup>414</sup> *Id.* at 55 (citing *Bennett v. Spear*, 520 U.S. 154, 169 (1997)).

prairie dog colony “is likely too small to support and sustain a breeding population of black-footed ferrets.”<sup>415</sup> The Oglala Sioux Tribe asserts that this conclusion is inappropriate because the DSEIS does not demonstrate that the NRC Staff consulted with or obtained the concurrence of the Fish and Wildlife Service.<sup>416</sup>

Finally, the Oglala Sioux Tribe asserts that the consultation requirement of the Migratory Bird Treaty Act, in addition to that of NEPA, is not satisfied by the DSEIS “and cannot be deferred until a later stage of the licensing proceedings.”<sup>417</sup> It also contends that the DSEIS does not appropriately examine the impacts on wildlife from waste disposal, particularly 11e(2) byproduct materials disposal, water disposal, and decommissioning activities.<sup>418</sup>

In response, NRC Staff states that “Contention 14 is a belated attempt to raise issues that could have been presented on Powertech’s [ER].”<sup>419</sup> The ER, the NRC Staff claims, discusses wildlife that could be affected by the Dewey-Burdock project, and the Oglala Sioux Tribe should have raised its concern previously.<sup>420</sup>

In addition to its being late filed, the NRC Staff asserts the Board must reject Contention 14 because no error was made in the consultation process.<sup>421</sup> NRC Staff states that it consulted with the Fish and Wildlife Service as early as March 2010 and determined that the Project would not affect listed species. Therefore, the NRC Staff maintains, a formal section 7 consultation was not required because “this section applies only where threatened and endangered species or critical habitats are present and impacts on a species are expected as a result of the proposed project.”<sup>422</sup> The Oglala Sioux Tribe, the NRC Staff asserts, fails to address the DSEIS’s explanation that a section 7 consultation was not required, and, therefore, there is no basis for admitting this portion of Contention 14.<sup>423</sup>

Finally, the NRC Staff declares that the Oglala Sioux Tribe did not “address other documents showing the Staff ha[d] consulted on wildlife issues with [the Bureau of Land Management] and South Dakota Game, Fish and Parks Division . . . and accepted recommendations from both agencies.”<sup>424</sup> The NRC Staff states that the Oglala Sioux Tribe must do more than merely allege that the DSEIS’s treatment of these issues is inadequate; “it must evaluate the underpinnings of

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<sup>415</sup> *Id.*

<sup>416</sup> *Id.*

<sup>417</sup> *Id.* at 56.

<sup>418</sup> *Id.* at 57.

<sup>419</sup> NRC Staff’s Answer at 45.

<sup>420</sup> *Id.*

<sup>421</sup> *Id.*

<sup>422</sup> *Id.* at 46 (citing 50 C.F.R. §§ 402.02, 402.13).

<sup>423</sup> *Id.*

<sup>424</sup> *Id.* at 47.

the DSEIS analysis and provide specific support for its claims.”<sup>425</sup> This, the NRC Staff claims, the Oglala Sioux Tribe did not do.<sup>426</sup>

In its response, Powertech argues that Contention 14 should be rejected because it does not consider all the information contained in the DSEIS that relates to the section 7 consultation process, consultation with other agencies, and threatened and endangered species.<sup>427</sup>

Powertech also argues that the NRC Staff conducted an informal consultation with the Fish and Wildlife Service and the latter “concluded that there are no federally threatened or endangered species within 1.0 mile of the proposed Dewey-Burdock project area.”<sup>428</sup> This determination, Powertech explains, does not require additional analysis.<sup>429</sup> Additionally, Powertech notes that the Fish and Wildlife Service has an opportunity to comment on the DSEIS, and maintains that the NRC Staff will respond accordingly to any such comments.<sup>430</sup> Powertech asserts that Contention 14 is, therefore, untimely, because it could have been filed based on previously released information and does not satisfy the standards set forth in 10 C.F.R. § 2.309(c).<sup>431</sup>

In response to the Oglala Sioux Tribe’s assertion that threatened and endangered species analyses are not addressed in the DSEIS, Powertech cites numerous portions of the DSEIS that, it claims, contain the allegedly omitted analyses.<sup>432</sup> Specifically, Powertech cites to portions of the DSEIS that analyze the status of the greater sage grouse.<sup>433</sup> It further asserts that information regarding this species was contained in the license application and, therefore, the Oglala Sioux Tribe should have filed this contention at an earlier time.<sup>434</sup> Powertech makes similar arguments regarding the whooping crane, noting that the DSEIS addresses this species and asserting that the Oglala Sioux Tribe has not demonstrated that its allegations satisfy the standards for new and amended contentions.<sup>435</sup> With regard to the black-footed ferret, Powertech argues that the Oglala Sioux Tribe’s

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<sup>425</sup> *Id.*

<sup>426</sup> *Id.*

<sup>427</sup> Powertech’s Response at 29 (referencing, as an example, DSEIS § 1.7.1).

<sup>428</sup> *Id.* at 29. The NRC Staff explains that this determination was also indicated in two letters from the Fish and Wildlife Service dated March 29, 2010, and August 27, 2012. *Id.* at 30.

<sup>429</sup> *Id.*

<sup>430</sup> *Id.*

<sup>431</sup> *Id.*

<sup>432</sup> *Id.* at 30-31.

<sup>433</sup> *Id.* at 31.

<sup>434</sup> *Id.*

<sup>435</sup> *Id.*

allegation goes against current practice because surveys on this species are not required in South Dakota.<sup>436</sup>

Concerning the Oglala Sioux Tribe's argument regarding the Migratory Bird Treaty Act, Powertech reiterates that the NRC Staff concluded that an informal consultation, rather than a formal section 7 consultation, was sufficient for the Fish and Wildlife Service to make relevant determinations. Additionally, Powertech notes that “[t]he DSEIS commits several lines of discussion to potential impacts to migratory birds . . . and such analysis is subject to additional public comments should [the Fish and Wildlife Service] deem it appropriate.”<sup>437</sup> For these reasons, Powertech asserts that Contention 14 must be rejected.

In reply, the Oglala Sioux Tribe argues that NRC Staff's and Powertech's assertions that the contention is late filed are “undermined by the fact that . . . the DSEIS admits that it lack[s] necessary information.”<sup>438</sup> Additionally, the Oglala Sioux Tribe notes that Powertech previously stated that the determinations regarding impacts to wildlife would be provided in the DSEIS.<sup>439</sup> Therefore, the Oglala Sioux Tribe contends that it could not be expected to file a contention based on information it was told would be available only in the DSEIS.<sup>440</sup> The Oglala Sioux Tribe accordingly maintains that Contention 14 is adequately supported and admissible.<sup>441</sup>

## **2. Board Ruling**

Contention 14 can be broken down into three primary components: (1) the Endangered Species Act's section 7 consultation process was not conducted adequately; (2) impacts to threatened and endangered species, including the greater sage grouse, the whooping crane, and the black-footed ferret, were not sufficiently assessed; and (3) the DSEIS does not adequately consider the Migratory Bird Treaty Act.

The Board finds that the first component — the adequacy of NRC's consultation process — meets the good cause standard for new and amended contentions filed after the initial deadline. Although, as NRC Staff and Powertech point out, bits and pieces of the information upon which the contention is based were previously available in some form in documents exchanged between the NRC Staff and the Fish and Wildlife Service, the adequacy, *vel non*, of the interagency consultation process does not hinge on each e-mail between them. Intervenors

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<sup>436</sup> *Id.* at 31-32.

<sup>437</sup> *Id.* at 32.

<sup>438</sup> Oglala Sioux Tribe's Reply at 22 (citing Oglala Sioux Tribe's Proposed Contentions at 53).

<sup>439</sup> *Id.*

<sup>440</sup> *Id.*

<sup>441</sup> *Id.*

cannot be expected to raise a claim each time a document is created relating to a proceeding, especially if that document is a mere part of a larger, arguably incomplete, process. In this case, a March 15, 2010 letter,<sup>442</sup> a March 29, 2010 letter,<sup>443</sup> and an August 27, 2012 e-mail<sup>444</sup> evidence the informal consultation process conducted between the NRC Staff and the Fish and Wildlife Service. The Board does not expect intervenors to raise a concern regarding each portion of the process, but instead notes that, in situations such as this, intervenors need not file a contention until all relevant parts of a process are completed. And in that regard, as the Board explains in more detail below, neither Powertech nor the NRC Staff point to documentation that demonstrates that the Fish and Wildlife Service *concurred* in the Staff's findings resulting from the information consultation process, a regulatory requirement that completes the informal consultation process. Furthermore, the documentation the NRC Staff and Powertech cite to support their responses in opposition to the admission of Contention 14 do not even suggest an end to the process until well after the deadline for the timely submission of the Oglala Sioux Tribe's contentions in April 2010. Therefore, the Oglala Sioux Tribe could not have proffered this argument in response to the application as part of its prior set of proposed contentions. Accordingly, the Board determines that the portion of this Oglala Sioux Tribe contention regarding the section 7 consultation process meets the good cause standard for late-filed contentions found in 10 C.F.R. § 2.309(c) because it is based on information that was not previously available and that is materially different from previously available information and because it was filed by the deadline set forth in the Board's scheduling order.<sup>445</sup>

To be admissible, this portion of the contention must not only meet the standards set forth in 10 C.F.R. § 2.309(c), but it also must meet the admissibility standards of 10 C.F.R. § 2.309(f)(1). The essence of the Oglala Sioux Tribe's claim is that the required consultation process was not completed. According to implementing regulations, the NRC must consult with the applicable entity, here the Fish and Wildlife Service, regarding the presence of listed species or critical habitat at the relevant site and the impacts the proposed project will have on those species and habitat. If the NRC engages in an informal consultation and it

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<sup>442</sup> Letter from Kevin Hsueh, Chief, Environmental Review Branch, Office of Federal and State Materials and Environmental Management Programs, NRC, to Pete Gober, Fish and Wildlife Conservation Office (Mar. 15, 2010) (ADAMS Accession No. ML100331503).

<sup>443</sup> Letter from Scott Larson, Acting Field Supervisor, South Dakota Field Office, to Kevin Hsueh, NRC (ADAMS Accession No. ML100970556).

<sup>444</sup> E-mail from Terry Quesinberry, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, to Amy Hester, Research Scientist, Center for Nuclear Waste Regulatory Analyses, Southwest Research Institute (ADAMS Accession No. ML12240A317).

<sup>445</sup> See 10 C.F.R. § 2.309(c)(1).

is determined that the project will not adversely affect listed species or critical habitat, it need not engage in formal consultation. The implementing regulation, 50 C.F.R. § 402.13, explains:

Informal consultation is an optional process that includes all discussions, correspondence, etc., between the Service and the Federal agency or the designated non-Federal representative, designed to assist the Federal agency in determining whether formal consultation or a conference is required. If during informal consultation it is determined by the Federal agency, *with the written concurrence of the Service*, that the action is not likely to adversely affect listed species or critical habitat, the consultation process is terminated, and no further action is necessary.<sup>446</sup>

Here, as the Board has noted previously, Powertech and the NRC Staff point to several documents that evidence an exchange between the NRC and the Fish and Wildlife Service that, they claim, fulfill the requirements of the informal consultation process. The NRC Staff and Powertech reference two letters and one e-mail that they assert demonstrate that the NRC was engaged in conversations with the Fish and Wildlife Service about the Project's impact on listed species and habitat. The August 27, 2012, e-mail from the NRC Staff to the Fish and Wildlife Service explains that the NRC Staff concluded "that a biological assessment or Section 7 consultation under the Endangered Species Act are not warranted for this proposed project because no adverse effects to federally threatened, endangered, or candidate species are expected. The bases for [this] determination will be provided in the draft SEIS."<sup>447</sup> Despite this conclusion, neither Powertech nor the NRC Staff points to documentation that demonstrates that the Fish and Wildlife Service *concurred* in this finding, a regulatory requirement that completes the informal consultation process. Accordingly, based on the information before us, the Board cannot determine whether the informal consultation process was completed. Further, to the extent that the DSEIS's impacts analyses are tied to the adequacy of the consultation process, the Board is unable to discern whether the DSEIS's impacts analyses relevant to the greater sage grouse, the whooping crane, and the black-footed ferret are sufficient.

Given this, the Board finds that the portions of Contention 14 relevant to the completion of the section 7 consultation process and the adequacy of the NRC Staff's impact analyses relevant to the three named species meet the admissibility standards of 10 C.F.R. § 2.309(f)(1). The Oglala Sioux Tribe has (1) provided a specific statement of the issue, (2) provided a brief explanation of the basis of the

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<sup>446</sup> 50 C.F.R. § 402.13(a) (emphasis added).

<sup>447</sup> E-mail from Terry Quesinberry, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, to Amy Hester, Research Scientist, Center for Nuclear Waste Regulatory Analyses, Southwest Research Institute (ADAMS Accession No. ML12240A317).

contention, (3) demonstrated that the issue is within the scope of this proceeding, (4) demonstrated that the issue is material to the findings the NRC must make to approve the application, (5) provided a concise statement of the alleged facts that support its position on the issue, and (6) shown that a genuine dispute exists with the applicant on a material issue of law and fact.<sup>448</sup> Accordingly, as is set forth in Appendix A to this opinion, these portions of Contention 14 are admitted in the following form: 14A — Whether an appropriate consultation was conducted pursuant to the Endangered Species Act and implementing regulations; and 14B — Whether the DSEIS's impact analyses relevant to the greater sage grouse, the whooping crane, and the black-footed ferret are sufficient.<sup>449</sup>

Insofar as the Oglala Sioux Tribe's second claim — that the DSEIS does not adequately assess the impacts to threatened and endangered species — is separate from its concern that the consultation process was not completed, resulting in an inadequate impacts analysis, the Board finds that its arguments in support of this aspect of the contention do not meet the contention admissibility standards of 10 C.F.R. § 2.309(f)(1)(v) and (vi) because the Oglala Sioux Tribe failed to present its claim with sufficient detail and support and failed to demonstrate that there exists a genuine dispute as to this issue. Accordingly, to the extent that the Oglala Sioux Tribe proffers concern regarding threatened and endangered species that is separate from its arguments regarding the consultation process and the above-named animals, that claim is rejected.

The Board finds that the Oglala Sioux Tribe's third claim in Contention 14 — that the NRC Staff did not engage in the consultation process relevant to issues addressed by the Migratory Bird Treaty Act and that the impacts to wildlife with respect to this Act are inadequately analyzed — is likewise inadmissible. To the extent that the Oglala Sioux Tribe continues to argue that a proper consultation process was not conducted, this has been addressed *supra*. Insofar as the Oglala Sioux Tribe is making additional claims related to the MBTA, the Board finds that it has not provided a sufficient explanation of its concern nor has it provided a concise statement of the alleged facts supporting its position, as required by 10 C.F.R. § 2.309(f)(1)(ii) and (v), respectively.<sup>450</sup> It is not the responsibility of the Board to read between the lines of a filing to glean the essence of an intervenor's contention. Accordingly, this portion of Contention 14 is rejected.

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<sup>448</sup> See 10 C.F.R. § 2.309(f)(1)(i)-(vi).

<sup>449</sup> The Board notes that Applicant and the NRC Staff may respond to this contention with an appropriate motion for summary disposition if documentation or other information exists that would moot the reformulated Contention 14.

<sup>450</sup> Where contentions are defective for whatever reason, licensing boards have no duty to make them acceptable under 10 C.F.R. § 2.309 (formerly section 2.714). *Commonwealth Edison Co. (Zion Station, Units 1 and 2)*, ALAB-226, 8 AEC 381, 406 (1974).

**O. Consolidated Intervenors’ Proposed DSEIS Contention A: ‘Failure to Meet Applicable Legal Requirements Regarding Protection of Cultural Resources, and Failure to Involve or Consult All Interested Tribes as Required by Federal Law’**

***I. Positions of the Parties***

In proposed DSEIS Contention A, Consolidated Intervenors complain of the DSEIS’s “failure to meet applicable legal requirements regarding protection of cultural resources, and failure to involve or consult all interested tribes as required by federal law.”<sup>451</sup> Consolidated Intervenors argue that the DSEIS “lacks an adequate description of either the affected environment or the impacts of the project on archaeological, historical, and traditional cultural resources” in contravention of requirements contained in NEPA, the National Historic Preservation Act (NHPA), and the provisions of 40 C.F.R. Part 51.<sup>452</sup> Specifically, Consolidated Intervenors allege that, because no subsurface testing was conducted, many cultural resources have not been located so as to be properly evaluated.<sup>453</sup> Therefore, they maintain that the DSEIS’s classification of impacts as “small” is premature.<sup>454</sup> Furthermore, they contend that certain tribes were not consulted in connection with the proposed Dewey-Burdock Project ISL uranium mine, which violates the NHPA’s requirement that all interested tribes be contacted with regard to projects such as the one at issue.<sup>455</sup>

In response, the NRC Staff argues that the contention is inadmissible because it was filed after the initial hearing petition deadline and does not meet the good cause standards of section 2.309(c). Specifically, the NRC Staff argues that Consolidated Intervenors “do not point to any new and materially different information in the DSEIS as support for their contentions.”<sup>456</sup> The NRC Staff argues that the DSEIS’s analysis is based on survey results that were submitted with Powertech’s application and, therefore, the information is not new.<sup>457</sup> However, the NRC Staff notes that, as explained in the DSEIS, the Staff is conducting a field survey of the site to gather additional information on historic properties.<sup>458</sup> Once this is complete and the DSEIS has been properly supplemented and circulated for comment, the NRC Staff suggests that Consolidated Intervenors may file a

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<sup>451</sup> Consolidated Intervenors’ Proposed Contentions at 2.

<sup>452</sup> *Id.* at 2.

<sup>453</sup> *Id.* at 2-3.

<sup>454</sup> *Id.* at 3.

<sup>455</sup> *Id.* at 6-7.

<sup>456</sup> Staff’s Answer at 12.

<sup>457</sup> *Id.* at 13.

<sup>458</sup> *Id.*

contention if they dispute the analysis contained therein.<sup>459</sup> Therefore, though not currently timely pursuant to the standards set out in 10 C.F.R. § 2.309(c), the NRC Staff concedes that a similar contention could meet the timeliness standards at a later date.

Additionally, with regard to the portion of the contention alleging that certain tribes have not been adequately consulted, the NRC Staff notes that, beginning in 2010, letters have been sent to tribes inviting them to be involved in the Dewey-Burdock Project consultation process.<sup>460</sup> These letters are public and, therefore, the Staff contends, could have been the basis of a contention at a previous time, but the time to file such a challenge has since expired.<sup>461</sup> Accordingly, the NRC Staff argues, there is no new or materially different information related to this portion of Consolidated Intervenors' contention that would make it timely under the regulations.

Powertech's response to Consolidated Intervenors' DSEIS Contention A echoes the response of the NRC Staff. First, Powertech asserts that the portion of DSEIS Contention A regarding the survey of cultural resources is not yet ripe for review because the NHPA § 106 process is not yet complete and will be finally resolved either as part of the NEPA process in the FSEIS or as an independent Memorandum of Agreement.<sup>462</sup>

Additionally, Powertech argues that the portion of DSEIS Contention A alleging that certain tribes have not been consulted does not meet the late-filed contention requirements because the list of Tribes to be consulted has been available since August 2012.<sup>463</sup> Therefore, the contention should have been filed prior to January 2013 to be deemed "timely" in accordance 10 C.F.R. § 2.307.<sup>464</sup>

In reply, Consolidated Intervenors support the timeliness of this contention by asserting it was filed on the deadline for filing challenges to the DSEIS set forth in the Board's scheduling order.<sup>465</sup> Consolidated Intervenors reason that, because their new proposed contentions, including Contention A, were filed before the applicable deadline, the timeliness standards established in the regulations should not preclude their admission — "Because of the exception for the DSEIS contentions in the Scheduling Orders, the usual rules concerning

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<sup>459</sup> *Id.*

<sup>460</sup> *Id.*

<sup>461</sup> *Id.*

<sup>462</sup> Powertech's Response at 8.

<sup>463</sup> *Id.* at 9.

<sup>464</sup> *Id.*

<sup>465</sup> Consolidated Intervenors' Reply at 1.

‘late-filed contentions’ do not apply to the DSEIS contentions filed on January 25, 2013.”<sup>466</sup>

Furthermore, Consolidated Intervenors challenge the NRC Staff’s and Powertech’s ripeness arguments by arguing that, once the DSEIS was issued, Consolidated Intervenors consulted their expert who compared the DSEIS to available research and ultimately opined that three interested tribes had not been consulted.<sup>467</sup> In their reply, however, Consolidated Intervenors do not address their ripeness arguments made with regard to the ongoing section 106 process relative to the additional Staff cultural resource surveys.

## **2. Board Ruling**

Consolidated Intervenors’ Proposed DSEIS Contention A bears a marked resemblance to portions of Consolidated Intervenors’ original Contention K, which was admitted by the Board in LBP-10-16.<sup>468</sup> To the extent Consolidated Intervenors’ proposed DSEIS Contention A challenges the sufficiency of the DSEIS as it pertains to the protection of cultural resources it falls within the migration tenet and is admissible. The NRC Staff states that it is working to facilitate a field survey of the Dewey-Burdock site to obtain additional information on historic properties<sup>469</sup> and, when that survey is complete, it “will supplement its analysis in the DSEIS and circulate the new analysis for public comment.”<sup>470</sup> However, to the extent proposed Contention A challenges the ongoing consultation obligations undertaken by the NRC Staff as part of the Section 106 process, the contention is not ripe because the section 106 process is not yet complete. As such, this portion of the contention is premature and inadmissible.

As noted *supra*,<sup>471</sup> the Board will consolidate the portions of admitted contentions that meet the migration tenet. The protection of cultural and historical resources and adequacy of consultation with the Native American tribes are two issues that have already been admitted in this proceeding. The concerns about

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<sup>466</sup> *Id.* at 2. Consolidated Intervenors specifically point to the Staff’s recognition of the Board’s scheduling orders, wherein it explains: “[T]he Board has issued two scheduling orders addressing the timeliness of contentions. Under these orders the Intervenors must submit contentions within 30 days after relevant information becomes available. . . . The exception is the DSEIS, which the Intervenors were given until January 25, 2013, to challenge.” *Id.* (citing Staff’s Answer at 7). *See* Licensing Board Order (Second Prehearing Conference Call Summary and Supplemental Initial Scheduling Order) at 3 (Oct. 16, 2012) (“[T]he parties will have 45 days following the issuance of the DSEIS to file new or amended contentions.”).

<sup>467</sup> Consolidated Intervenors’ Reply at 4.

<sup>468</sup> LBP-10-16, 72 NRC at 416-18.

<sup>469</sup> Notice of Availability of DSEIS at 1-2 (Nov. 15, 2012) (ADAMS Accession No. ML12320A623).

<sup>470</sup> Staff’s Answer at 13.

<sup>471</sup> *See supra* Part III.B.

the protection of historic and cultural resources and the adequacy of consultation with the Native American tribes have “migrated,” as these previously admitted issues now appear in relation to the DSEIS. The Board finds that this contention is not time barred and is a migration of the concerns originally raised in response to the Powertech ER. For efficiency and to clarify this contention the Board will combine the multiple iterations of the Consolidated Intervenors’ contention with the corresponding contention of the Oglala Sioux Tribe into a single contention for hearing, the terms of which are set forth in Appendix A to this decision.<sup>472</sup>

**P. Consolidated Intervenors’ Proposed DSEIS Contention B: “The DSEIS Fails to Include Necessary Information for Adequate Determination of Baseline Ground Water Quality”**

*I. Positions of the Parties*

In Consolidated Intervenors’ proposed DSEIS Contention B, Consolidated Intervenors argue that “the DSEIS fails to include necessary information for adequate determination of baseline ground water quality.”<sup>473</sup> Consolidated Intervenors argue that NRC regulations and NEPA require the DSEIS to demonstrate the Staff’s consideration of alternatives, methods and sources used in its analysis, and supportive resources and evidence.<sup>474</sup> They assert that NRC regulations and NEPA “require a description of the affected environment containing sufficient data to aid the Commission in its conduct of an independent analysis” as well as “complete baseline data on a milling site and its environs.”<sup>475</sup> They also point to certain NUREG provisions that require proper assessment of groundwater with regard to the proposed site using certain methodologies.<sup>476</sup> Moreover, Consolidated Intervenors state that “[t]he establishment of the baseline conditions of the affected environment is a fundamental requirement of the NEPA process.”<sup>477</sup> Based on the supplemental declaration of Dr. Robert E. Moran as support, Consolidated Intervenors argue that the DSEIS lacks “scientifically defendable-analysis . . . regarding potential impacts to ground water associated with the proposed Project.”<sup>478</sup>

In response to this contention, the NRC Staff argues that Consolidated Inter-

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<sup>472</sup> 10 C.F.R. §§ 2.316, 2.333, 2.319.

<sup>473</sup> Consolidated Intervenors’ Proposed Contentions 7.

<sup>474</sup> *Id.* at 7.

<sup>475</sup> *Id.* at 8.

<sup>476</sup> *Id.* at 8-9.

<sup>477</sup> *Id.* at 9.

<sup>478</sup> *Id.* at 10; *see id.* at 10-19 (discussing portions of Dr. Moran’s declaration that detail the omitted analysis relevant to baseline water quality).

venors' proposed DSEIS Contention B fails to meet the timeliness requirements of 10 C.F.R. § 2.309(c) because it is not based on new or materially different information.<sup>479</sup> To support this, NRC Staff points out that the portions of Dr. Moran's declaration cited by Consolidated Intervenors "merely restate arguments from his original Declaration, with DSEIS references substituted for reference to Powertech's application."<sup>480</sup> The NRC Staff also argues that Powertech submitted additional baseline groundwater data in June of 2011, and that Consolidated Intervenors were obligated to file a challenge to this information within 30 days of the submission.<sup>481</sup> The NRC Staff argues that the information released in June 2011, which has been incorporated into the DSEIS, cannot now be challenged by Consolidated Intervenors because it is no longer "new."<sup>482</sup>

Finally, the NRC Staff argues that Consolidated Intervenors misread the DSEIS because they challenge portions of the DSEIS that relate to the "groundwater monitoring programs that Powertech will implement during ISR operations."<sup>483</sup> The programs the Consolidated Intervenors highlight as nonresponsive to regulations, the NRC Staff states, are not intended to establish baselines.<sup>484</sup> For these reasons, the NRC Staff urges the Board to find this contention inadmissible.

In Powertech's response to Consolidated Intervenors' proposed DSEIS Contention B, the Applicant argues that this contention fails to satisfy the timeliness standards of 10 C.F.R. § 2.309(c)(i)-(ii) that require the information upon which a new or amended contention is based to be new or materially different from previously available information.<sup>485</sup> Powertech argues each portion of DSEIS Contention B relates to information that was available before the issuance of the DSEIS.<sup>486</sup> Therefore, Powertech declares, Consolidated Intervenors should have filed their grievances prior to the issuance of the DSEIS so that proposed DSEIS Contention B should be rejected for failure to timely file.<sup>487</sup>

In their reply, Consolidated Intervenors repeat arguments they made in defense of proposed DSEIS Contention A, namely that the NRC Staff's and Powertech's arguments regarding timeliness should fail because the contention was submitted before the Board's deadline to file new or amended contentions related to the DSEIS.<sup>488</sup> Additionally, Consolidated Intervenors maintain in their reply that their

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<sup>479</sup> Staff's Answer at 16.

<sup>480</sup> *Id.* at 16-17.

<sup>481</sup> *Id.* at 16.

<sup>482</sup> *Id.* at 17.

<sup>483</sup> *Id.*

<sup>484</sup> *Id.*

<sup>485</sup> Powertech's Response at 9.

<sup>486</sup> *Id.* at 10.

<sup>487</sup> *Id.*

<sup>488</sup> Consolidated Intervenors' Reply at 2.

proposed contentions, including DSEIS Contention B, meet each of the contention admissibility standards of 10 C.F.R. 2.309(f)(1).<sup>489</sup>

## **2. *Board Ruling***

Those portions of proposed DSEIS Contention B that challenge the technical adequacy of baseline water quality data and adequate confinement of the host aquifer are admissible. Proposed DSEIS Contention B is *in para materia* to previously admitted contention D in LBP-10-16. The Consolidated Intervenors' declarant, Dr. Moran, states at page 20 of his Declaration, that "the 2009 Powertech Application, carried forward in the DSEIS, includes what it incorrectly calls baseline."<sup>490</sup> To the extent the Consolidated Intervenors challenge the adequacy of the baseline water quality data and raise questions about the confinement of the host aquifer, these issues were admitted in LBP-10-16 and migrate. However, to the extent the Consolidated Intervenors seek to expand the scope of the previously admitted contention, such expansion is denied. Further, the Board will merge this contention with previously admitted Consolidated Intervenors' Contention D and the Oglala Sioux Tribe's original Contention 2 and DSEIS Contention 2, as discussed above.<sup>491</sup>

## **Q. Consolidated Intervenors' Proposed DSEIS Contention C: "The DSEIS Fails to Include an Adequate Hydrogeological Analysis to Assess Adequate Confinement and Potential Impacts to Groundwater"**

### **1. *Positions of the Parties***

Consolidated Intervenors' proposed DSEIS Contention C alleges that "the DSEIS fails to include an adequate hydrogeological analysis to assess adequate confinement and potential impacts to groundwater."<sup>492</sup> To support this contention, Consolidated Intervenors claim that NRC regulations and NEPA "require each Draft EIS to include a description of the affected environment and the impact of the proposed project on the environment, with sufficient data to enable the agency and the public to assess and review the potential impacts associated with the proposed mine."<sup>493</sup> Consolidated Intervenors then point to NUREG provisions that discuss

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<sup>489</sup> *Id.* at 3.

<sup>490</sup> Oglala Sioux Tribe's Proposed Contentions, Exh. 2, Supplemental Declaration of Dr. Robert E. Moran (Jan. 24, 2013), at 20.

<sup>491</sup> See *supra* Part IV.B.

<sup>492</sup> Consolidated Intervenors' Proposed Contentions at 19.

<sup>493</sup> *Id.* at 19 (discussing 10 C.F.R. §§ 51.10, 51.70, 51.71, and NEPA).

the manner in which an applicant should collect and present hydrogeological data.<sup>494</sup> And in that regard, Consolidated Intervenors assert that the “DSEIS fails to present sufficient information in a scientifically defensible manner to adequately characterize the site and off-site hydrogeology to enable a meaningful review of the potential impacts of the proposed mine” in contravention of NEPA, NRC regulations, and NUREG provisions.<sup>495</sup>

Consolidated Intervenors also declare that the NRC Staff improperly relies on the Applicant’s commitment to perform future actions to support its conclusions in the DSEIS.<sup>496</sup> According to Consolidated Intervenors this reliance, and the related lack of data, “undermines the public’s (and the agencies’) ability to understand and evaluate the potential impacts of the operation.”<sup>497</sup> By way of example, Consolidated Intervenors argue that, rather than requiring that data be collected to determine the impacts of mining in an area where the Fall River aquifer is not hydrogeologically confined, the Staff relies on the Applicant’s commitment, contained in a license condition, to conduct investigations into this matter.<sup>498</sup> To support this and the other details of this contention, Consolidated Intervenors cite to specific portions of Dr. Moran’s declaration that identify and describe the areas in the DSEIS that lack data and analysis required by regulation and statute.<sup>499</sup> For the above reasons, Consolidated Intervenors submit that this contention is a contention of omission and should be admitted.

In response, the NRC Staff and Powertech assert that proposed DSEIS Contention C is inadmissible because it is not based on new or materially different information as required by 10 C.F.R. § 2.309(c).<sup>500</sup> Specifically, the NRC Staff claims that the portions of Dr. Moran’s declaration cited by Consolidated Intervenors either reiterate arguments previously made in relation to the application or reference information from Powertech’s supplements to its application.<sup>501</sup> Therefore, the NRC Staff maintains, Consolidated Intervenors have not demonstrated the new information on which to base their Contention C.<sup>502</sup>

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<sup>494</sup> *Id.* at 20 (discussing NUREG-1569).

<sup>495</sup> *Id.* Consolidated Intervenors argue that “[t]hese deficiencies include unsubstantiated assumptions as to the isolation of the aquifers in the ore-bearing zones and failure to account for natural and man-made hydraulic conductivity through natural breccias pipe formations and the historic drilling of literally thousands of drill holes in the aquifers and ore-bearing zones in question, which were not properly abandoned.” *Id.*

<sup>496</sup> *Id.* at 21-22.

<sup>497</sup> *Id.* at 22.

<sup>498</sup> *Id.*

<sup>499</sup> *Id.* at 22-26.

<sup>500</sup> NRC Staff’s Answer at 18; Applicant’s Response at 12.

<sup>501</sup> NRC Staff’s Answer at 18.

<sup>502</sup> *Id.*

Additionally, the NRC Staff argues that Contention C “rest[s] on an incomplete reading of the DSEIS.”<sup>503</sup> For example, the Staff contends that Dr. Moran’s allegation that the “DSEIS fails to provide detailed information on the hydrogeologic performance of the bounding geologic units in the Dewey-Burdock area” cites only two pages in the DSEIS and overlooks “broad sections of the DSEIS that provide the very data he claims are missing.”<sup>504</sup>

In response to Consolidated Intervenors’ argument that the DSEIS improperly relies on Powertech’s commitment to future action, the NRC Staff states that relying on a license condition in the DSEIS “is consistent with Commission precedent and NRC regulations.”<sup>505</sup> Further, the NRC Staff argues that some of the regulations Consolidated Intervenors cite to support their claim of omitted information — specifically 10 C.F.R. Part 40, Appendix A, Criteria 4(e) and 5G(2) — refer to safety criteria that apply to applicants and licensees and are not relevant to the NEPA review.<sup>506</sup> Moreover, the Staff declares, the specific regulations cited concern conventional milling, not in situ recovery activities.<sup>507</sup> Accordingly, the NRC Staff asserts that DSEIS Contention C should be found inadmissible.

In reply, Consolidated Intervenors take the same stance as with their other contentions, reiterating that the proposed DSEIS Contention C is timely filed because it met the relevant deadline contained in the Board’s scheduling order and that it is admissible because it meets the standards set forth in 10 C.F.R. § 2.309(f)(1).<sup>508</sup>

## **2. *Board Ruling***

Consolidated Intervenors’ proposed DSEIS Contention C bears a marked resemblance to portions of Consolidated Intervenors’ Contention E (merged with Contention J), which was admitted in LBP-10-16.<sup>509</sup> To the extent Consolidated Intervenors’ proposed DSEIS Contention C challenges the failure of the DSEIS to include an adequate hydrological analysis to assess adequate confinement

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<sup>503</sup> *Id.* at 19.

<sup>504</sup> *Id.*

<sup>505</sup> *Id.* at 20 (citing *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 17 (1999)).

<sup>506</sup> *Id.* at 20.

<sup>507</sup> *Id.*

<sup>508</sup> Consolidated Intervenors’ Reply at 1-3.

<sup>509</sup> LBP-10-16, 72 NRC at 407.

and potential impacts to groundwater, it falls within the migration tenet and is admissible.<sup>510</sup>

**R. Consolidated Intervenors’ Proposed DSEIS Contention D: “The DSEIS Fails to Adequately Analyze Ground Water Quantity Impacts”**

***1. Positions of the Parties***

Consolidated Intervenors’ fourth and final proposed contention, Contention D, asserts that “the DSEIS fails to adequately analyze ground water quantity impacts” in contravention of NRC regulations and NEPA.<sup>511</sup> Additionally, Consolidated Intervenors contend that “the DSEIS presents conflicting information on ground water consumption such that the water consumption impacts of the project cannot be accurately evaluated.”<sup>512</sup>

To support these assertions, Consolidated Intervenors quote the declaration of Dr. Moran at considerable length.<sup>513</sup> Among other things, they highlight his opinions that (1) although the site, located in a semi-arid area, will use considerable amounts of water, the DSEIS provides no reliable estimates for the volumes and sources of water to be used; (2) no data are provided for the volume of groundwater to be used in phases other than the construction phase; and (3) when calculated using current data, the volume of groundwater used over the course of the project will be very large, and the Applicant has not investigated the impact this may have on area groundwater levels.<sup>514</sup> Relying on these opinions, Consolidated Intervenors argue that the DSEIS does not meet NEPA and the relevant regulations that “require the agency to provide sufficient data for a scientifically defensible review of the environmental impacts of the operation and for the Commission to conduct an independent analysis.”<sup>515</sup>

In response to this contention, the NRC Staff states Consolidated Intervenors have failed to demonstrate how the information in the DSEIS with which they take issue is materially different from previously available information.<sup>516</sup> The data in the DSEIS, the NRC Staff explains, were previously submitted in the ER

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<sup>510</sup>LBP-10-16 also modified Consolidated Intervenors’ Contention D so that it addressed, in part, aquifer confinement. *Id.* at 403-04.

<sup>511</sup>Consolidated Intervenors’ Proposed Contentions at 26. Specifically, Consolidated Intervenors contend that this violates 10 C.F.R. §§ 51.10, 51.70, 51.71.

<sup>512</sup>*Id.* at 26.

<sup>513</sup>*Id.* at 27-29.

<sup>514</sup>*Id.*

<sup>515</sup>*Id.* at 27.

<sup>516</sup>Staff’s Answer at 21.

and in the supplements to Powertech’s application, and the time within which to challenge the information contained in either the ER or the supplements has lapsed.<sup>517</sup>

In addition, the NRC Staff contends that Consolidated Intervenors’ contention relies on an incomplete or inaccurate reading of the DSEIS.<sup>518</sup> For example, the NRC Staff asserts that the pages Dr. Moran cites do not support his claim and that he overlooks certain portions of the DSEIS that provide the information he claims has been omitted.<sup>519</sup>

Powertech also argues that Consolidated Intervenors’ Contention D is not based on new or materially different information in contravention of 10 C.F.R. § 2.309(c).<sup>520</sup> Specifically Powertech argues, as it did with Consolidated Intervenors’ Contentions A through C, that the allegations brought forth in this contention are based on information that was incorporated into the first draft license and the RAI responses, or could be found elsewhere in the public record.<sup>521</sup> Therefore, Powertech states Contention D should be found inadmissible.

In their reply in support of Contention D, Consolidated Intervenors argue, as they did with Contentions A through C, that the contention is timely because it meets the deadline set forth in the Board’s scheduling orders.<sup>522</sup> Additionally, Consolidated Intervenors assert that Contention D, like Contentions A though C, meets the contention admissibility standards of 10 C.F.R. § 2.309(f)(1).<sup>523</sup>

## **2. *Board Ruling***

Consolidated Intervenors’ proposed DSEIS Contention D is similar to Consolidated Intervenors’ original Contention F.<sup>524</sup> Consolidated Intervenors’ Contention F was rejected by the Board in LBP-10-16 because it lacked support.<sup>525</sup> In response to the publication of the DSEIS, however, the Consolidated Intervenors again put forth a contention that challenges the sufficiency of analysis of groundwater quantity impacts. The Board must, once again, reject this contention because the Consolidated Intervenors fail to explain how the information in the DSEIS is materially different from the information contained in Powertech’s Environmental Report. Therefore, this contention is impermissibly late. Consolidated

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<sup>517</sup> *Id.*

<sup>518</sup> *Id.*

<sup>519</sup> *Id.* at 21-22 (citing DSEIS at 4-57 to 4-60; 4-64 to 4-65; 4-70 to 4-71).

<sup>520</sup> Powertech’s Response at 12.

<sup>521</sup> *Id.* at 13.

<sup>522</sup> Consolidated Intervenors’ Reply at 1-3.

<sup>523</sup> *Id.* at 3.

<sup>524</sup> See LBP-10-16, 72 NRC at 407.

<sup>525</sup> *Id.* at 407-08.

Intervenors' DSEIS Contention D cannot be admitted because it does not meet the requirements of section 2.309(c)(1). Further, as was the case with Consolidated Intervenors' original Contention F, this contention lacks adequate support to establish a genuine dispute exists on a material legal or factual issue so that its admission is precluded under section 2.309(f)(1)(vi) of the Commission's regulations.

The Board nonetheless notes that the Oglala Sioux Tribe raised a similar contention concerning the issue of groundwater quantity impacts in their original Contention 4 and the Board admitted it.<sup>526</sup> The Board has now admitted, via the migration tenet, the Oglala Sioux Tribe's Contention 4 filed in response to the publication of the DSEIS that raises essentially the same issue.<sup>527</sup> Therefore, the matter of adequate analysis of water quantity impacts under NEPA will be considered in the evidentiary hearing.

## V. CONCLUSION

By this Order the Board combines and consolidates the contentions filed by the Oglala Sioux Tribe and the Consolidated Intervenors, which were admitted in response to the 2010 notice of opportunity for hearing (original contentions) and addressed in LBP-10-16, with the admitted contentions filed in 2013 in response to the publication of the DSEIS (DSEIS contentions). The following Table summarizes our contention admissibility holdings to date:

**Table of Admitted Contentions  
Dewey-Burdock In-Situ Recovery Facility**

Topic <sup>528</sup>	Oglala Sioux Original-2010	Oglala Sioux DSEIS-2013	Consolidated Intervenors Original-2010	Consolidated Intervenors DSEIS-2013	Combined
Historical & cultural resources	1	1	K	A	1-A
Failure to consult	1	1	—	—	1-B
Groundwater quality	2	2	D	B	2

*Continued*

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<sup>526</sup> See *id.* at 426-28.

<sup>527</sup> See *supra* Part IV.D.

<sup>528</sup> The statement of the admitted contention going forward is contained in the Board's Order, *infra* Part VI, and in Appendix A.

<b>Topic</b>	<b>Oglala Sioux Original-2010</b>	<b>Oglala Sioux DSEIS-2013</b>	<b>Consolidated Intervenors Original-2010</b>	<b>Consolidated Intervenors DSEIS-2013</b>	<b>Combined</b>
Hydrogeological information	3	3	E and J	C	3
Groundwater quantity impacts	4	4	F*	D*	4
Mitigation measures	—	6	—	—	6
Connected actions	—	9	—	—	9
Consultation on Endangered Species Act	—	14	—	—	14A
Sufficiency of impact analyses	—	14	—	—	14B

\*These contentions were rejected by the Board, but are included here for completeness.

## **VI. BOARD ORDER**

A. As this case proceeds toward evidentiary hearing, the Board, exercising its obligation to conduct a fair and impartial hearing and to manage the hearing to restrict duplicative or cumulative evidence and/or arguments,<sup>529</sup> has combined and reworded the previously admitted contentions with the migrated contentions as follows:

**Contention 1A:** Failure to Meet Applicable Legal Requirements Regarding Protection of Historical and Cultural Resources.<sup>530</sup>

**Contention 1B:** Failure to Involve or Consult All Interested Tribes as Required by Federal Law.<sup>531</sup>

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<sup>529</sup> 10 C.F.R. § 2.319(e).

<sup>530</sup> Contention 1A merges previously admitted Oglala Sioux Tribe Contention 1 (OST-1) and Consolidated Intervenors Contention K (CI-K) with migrated Oglala Sioux Tribe Contention 1 regarding the DSEIS (OST DSEIS-1) and Consolidated Intervenors Contention A regarding the DSEIS (CI DSEIS-A).

<sup>531</sup> Contention 1B merges previously admitted OST-1 with migrated OST DSEIS-1.

**Contention 2:** The DSEIS Fails to Include Necessary Information for Adequate Determination of Baseline Ground Water Quality.<sup>532</sup>

**Contention 3:** The DSEIS Fails to Include Adequate Hydrogeological Information to Demonstrate Ability to Contain Fluid Migration and Assess Potential Impacts to Groundwater.<sup>533</sup>

**Contention 4:** The DSEIS Fails to Adequately Analyze Ground Water Quantity Impacts.<sup>534</sup>

B. The Board further admits the following contentions submitted in response to the publication of the DSEIS:

**Contention 6:** The DSEIS Fails to Adequately Describe or Analyze Proposed Mitigation Measures.

**Contention 9:** The DSEIS Fails to Consider Connected Actions.

C. The Board admits the following portion of the Oglala Sioux Tribe's proposed Contention 14 in this proceeding:

**Contention 14A:** Whether an appropriate consultation was conducted pursuant to the Endangered Species Act and implementing regulations.

**Contention 14B:** Whether the DSEIS's impact analyses relevant to the greater sage grouse, the whooping crane, and the black-footed ferret are sufficient.

D. The Board finds inadmissible the following contentions proposed by the Oglala Sioux Tribe in response to the publication of the DSEIS: Contentions 5, 7, 8, 10, 11, 12, 13.

E. The Board finds inadmissible the following contention proposed by the Consolidated Intervenors in response to the publication of the DSEIS: Contention D.

F. The Board will hold a telephone conference with the parties to discuss administrative matters, including the designation under 10 C.F.R. § 2.316 of the lead intervenor that will be responsible for the litigation of each of the consolidated contentions, i.e., Contentions 1A, 1B, 2, and 3, and a schedule for further proceedings in this matter, including a site visit and a Limited Appearance session pursuant to 10 C.F.R. § 2.315(a).

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<sup>532</sup>Contention 2 merges previously admitted OST-2 and CI-D with migrated OST DSEIS-2 and CI DSEIS-B.

<sup>533</sup>Contention 3 merges previously admitted OST-3 and CI-E (as merged with CI-J), with migrated CI DSEIS-C and OST DSEIS-3.

<sup>534</sup>Contention 4 merges previously admitted OST-4 with migrated OST DSEIS-4.

G. No specific section of the Commission's regulations, including 10 C.F.R. § 2.311, permits appeals from an order ruling on the admission of new or amended contentions. Nonetheless, interlocutory review of decisions and actions of a presiding officer may be available pursuant to section 2.341(f)(2) of the Commission's regulations.<sup>535</sup>

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

William J. Froehlich, Chair  
ADMINISTRATIVE JUDGE

Richard F. Cole  
ADMINISTRATIVE JUDGE

Mark O. Barnett  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
July 22, 2013

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<sup>535</sup>The Board notes, however, that the Commission has issued an advanced notice of proposed rulemaking on April 5, 2013, entitled "Potential Changes to Interlocutory Appeals Process for Adjudicatory Decisions." *See* 78 Fed. Reg. 20,498 (2013).

## **APPENDIX A**

**Contention 1A:** Failure to Meet Applicable Legal Requirements Regarding Protection of Historical and Cultural Resources.

**Contention 1B:** Failure to Involve or Consult All Interested Tribes as Required by Federal Law.

**Contention 2:** The DSEIS Fails to Include Necessary Information for Adequate Determination of Baseline Ground Water Quality.

**Contention 3:** The DSEIS Fails to Include Adequate Hydrogeological Information to Demonstrate Ability to Contain Fluid Migration and Assess Potential Impacts to Groundwater.

**Contention 4:** The DSEIS Fails to Adequately Analyze Ground Water Quantity Impacts.

**Contention 6:** The DSEIS Fails to Adequately Describe or Analyze Proposed Mitigation Measures.

**Contention 9:** The DSEIS Fails to Consider Connected Actions.

**Contention 14A:** Whether an appropriate consultation was conducted pursuant to the Endangered Species Act and implementing regulations.

**Contention 14B:** Whether the DSEIS's impact analyses relevant to the greater sage grouse, the whooping crane, and the black-footed ferret are sufficient.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**G. Paul Bollwerk, III**, Chairman  
**Dr. Richard F. Cole**  
**Dr. Kenneth L. Mossman**

**In the Matter of**

**Docket No. 40-9091-MLA  
(ASLBP No. 12-915-01-MLA-BD01)**

**STRATA ENERGY, INC.  
(Ross In Situ Recovery  
Uranium Project)**

**July 26, 2013**

In this 10 C.F.R. Part 40 proceeding regarding the application of Strata Energy, Inc., for a license to possess and use the nuclear source material that would be generated by its operation of an in situ uranium recovery (ISR) facility on the Ross ISR Uranium Project site, the Licensing Board grants the request of Joint Intervenors Natural Resources Defense Council and the Powder River Basin Resource Council to “resubmit” (i.e., migrate) three of four previously admitted National Environmental Policy Act (NEPA)/environmental-related contentions so as to frame them as challenges to the NRC Staff’s draft supplemental environmental impact statement (DSEIS) regarding the proposed Ross ISR facility and denies Joint Intervenors’ motion to admit a new environmental contention.

**RULES OF PRACTICE: CONTENTIONS (NEW OR AMENDED;  
MOTION FOR LEAVE REQUIREMENT)**

Under 10 C.F.R. § 2.309(c)(1), after the section 2.309(b) deadline has passed for submitting an initial hearing petition with one or more accompanying contentions, a petitioner/intervenor that wishes either to (1) amend an already sub-

mitted or admitted contention; or (2) gain the admission of a new contention must file a motion for leave to file such a new or amended contention.

#### **RULES OF PRACTICE: CONTENTIONS (NEW OR AMENDED; GOOD CAUSE REQUIREMENT)**

Under section 2.309(c)(1), the timing of the submission of a new/amended contention comes into play to the extent that consideration of whether a new/amended contention can be admitted/adopted is dependent on whether, regardless of the issue statement's substantive sufficiency, a presiding officer can conclude that the petitioner/intervenor has demonstrated "good cause" for its post-initial hearing petition deadline filing, based on the following three factors:

- (i) The information upon which the filing is based was not previously available;
- (ii) The information upon which the filing is based is materially different from information previously available; and
- (iii) The filing has been submitted in a timely fashion based on the availability of the subsequent information.

10 C.F.R. § 2.309(c)(1)(i)-(iii).

#### **RULES OF PRACTICE: CONTENTIONS (NEW OR AMENDED; GOOD CAUSE REQUIREMENT)**

While the first two "good cause" factors relate to the nature of the information that is being employed as the basis for the new/amended contention, the third concerns the timeliness of the submission of that information in support of a request to admit the new/amended contention. This factor involves the question whether the new/amended contention and the associated information that is the basis for the contention, even if newly available and materially different from any information that was previously available, nonetheless were seasonably submitted. And, in contrast to section 2.309(b)'s provisions relating to an initial hearing petition, *see* 10 C.F.R. § 2.309(b) (defining the timeliness of an initial hearing petition in different situations as being filed between 20 and 60 days after certain specified events), section 2.309(c)(1)(iii) does not stipulate what is considered "timely." As it turns out, the degree to which the new/amended contention and its otherwise newly available and materially different supporting information will be considered timely submitted is, as in this case, generally defined by the presiding officer as a specific period following the "triggering event" that makes the not previously available/materially different information available so as to be the basis for the new/amended contention.

### **RULES OF PRACTICE: CONTENTIONS (NEW OR AMENDED; GOOD CAUSE REQUIREMENT)**

As is made clear in the discussion in the statement of considerations supporting the September 2012 10 C.F.R. Part 2 rule change, *see* Final Rule: “Amendments to Adjudicatory Process Rules and Related Requirements,” 77 Fed. Reg. 46,562, 46,571-72 (Aug. 3, 2012), the time for submitting a new/amended contention motion based on information that would be newly available, materially different, and otherwise timely submitted given the information’s availability can be extended if the extension request is based on “good cause,” as that term is defined in 10 C.F.R. § 2.307, or the presiding officer approves the parties’ stipulation of a different filing time.

### **RULES OF PRACTICE: CONTENTIONS (NEW OR AMENDED; ADMISSIBILITY)**

As is the case with a contention submitted in support of an initial hearing petition, under section 2.309(c)(4) a new or amended contention generally must meet the six admissibility factors specified in section 2.309(f)(1), which in relevant part require that for each contention the submitter

- (i) Provide a specific statement of the issue of law or fact to be raised or controverted . . . ;
- (ii) Provide a brief explanation of the basis for the contention;
- (iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;
- (iv) Demonstrate that the issue raised in the contention is material to the finding the NRC must make to support the action that is involved in the proceeding;
- (v) Provide a concise statement of the alleged facts or expert opinions which support the requestor’s/petitioner’s position on the issue and on which the petitioner intends to rely at hearing . . . ;
- (vi) . . . [P]rovide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact . . . .

10 C.F.R. § 2.309(f)(1)(i)-(vi).

### **RULES OF PRACTICE: CONTENTIONS (NEPA MIGRATION TENET)**

Although a motion addressing the section 2.309(c)(1) and (f)(1) factors generally must be submitted to permit the admission of a new/amended contention, there is a recognized exception for licensing proceedings in the case of NEPA-related contentions. Such contentions initially are based on the environmental

report (ER) submitted by the applicant to fulfill its NEPA-related responsibilities under 10 C.F.R. Part 51 to provide the Staff with information and analysis that will inform the Staff's NEPA review. *See* 10 C.F.R. § 2.309(f)(2). And if the Staff in preparing its NEPA impact statement does indeed adopt the ER-associated information/analysis that was challenged as inadequate, or, alternatively, maintains the same omission that was alleged to be in the ER, it has been acknowledged that the issues those ER-based admitted contentions raise can essentially transmute into challenges to the Staff's NEPA statement. *See Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-01-23, 54 NRC 163, 172 n.3 (2001); *see also Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 84 (1998).

#### **RULES OF PRACTICE: CONTENTIONS (CONTENTION OF OMISSION; CONTENTION OF ADEQUACY)**

It has been recognized that the issues framed in contentions challenging an application generally encompass two categories, i.e., those that allege an informational or analytical omission from the application and those that allege that the information/analysis in the application is inadequate (as opposed to missing). *See Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-28, 56 NRC 373, 382-83 (2002) (“There is, in short, a difference between contentions that merely allege an ‘omission’ of information and those that challenge substantively and specifically how particular information has been discussed in a license application.”); *see also Powertech USA, Inc.* (Dewey-Burdock In Situ Uranium Recovery Facility), LBP-13-9, 78 NRC 37, 47-48 (2013) (providing general discussion about contentions of omission and contentions of adequacy).

#### **RULES OF PRACTICE: CONTENTIONS (MIGRATION TENET AS APPLICABLE TO SAFETY-RELATED CONTENTIONS)**

Consistent with the general principle that, because the primary responsibility to address and comply with Atomic Energy Act safety-related requirements resides with a license applicant, so that the application, not the Staff's application review, is the focus of any safety-related contentions, *see Curators of the University of Missouri* (TRUMP-S Project), CLI-95-8, 41 NRC 386, 396 (1995); *Curators of the University of Missouri* (TRUMP-S Project), CLI-95-1, 41 NRC 71, 121-22 (1995), issuance of the Staff's safety evaluation report (SER) generally would not trigger the migration tenet. Rather, if anything in the Staff's SER is considered as impacting an admitted license application-based safety contention or creating a new safety concern, as a general rule that matter would need to be raised, relative

to an admitted safety contention, in the context of the merits disposition of the already admitted safety contention or, in the case of a new issue (and presuming such a Staff safety review-triggered contention is admissible), as a wholly new safety contention.

#### **RULES OF PRACTICE: CONTENTIONS (NEPA MIGRATION TENET)**

Somewhat ironically, the migration tenet reflects a situation that, strictly speaking, is in juxtaposition to what is contemplated as necessary under the “not previously available” and “materially different” provisos of section 2.309(c)(1)(i)-(ii) governing new/amended contention admission. This is because the invocation of this tenet has the effect of automatically “amending” the contention to substitute the Staff’s environmental review impact statement information/analysis (relative to a contention of adequacy) or lack of information/analysis (relative to a contention of omission) as the foundational support for the contention without filing a new/amended contention motion addressing either the section 2.309(c)(1) or (f)(1) factors.

#### **RULES OF PRACTICE: CONTENTIONS (NEPA MIGRATION TENET)**

The migration tenet is applicable only if the information in the Staff’s post-ER NEPA statement is “sufficiently similar to the information in the ER,” i.e., essentially in pari materia with the ER information/analysis, or lack of information/analysis, that is the focus of the contention. *See Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), LBP-08-2, 67 NRC 54, 63-64 (2008); *see also Dewey-Burdock*, LBP-13-9, 78 NRC at 46-47; *Detroit Edison Co.* (Fermi Nuclear Power Plant, Unit 3), LBP-12-23, 76 NRC 445, 470-71 (2012); *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-11-1, 73 NRC 19, 26 (2011).

#### **RULES OF PRACTICE: CONTENTIONS (NEPA MIGRATION TENET)**

The “migration tenet” serves a useful administrative efficiency purpose in that it dispenses with the need for (1) the applicant/Staff to file a dismissal/dispositive motion, with the accompanying party filings and Board decision, so as to have the admitted contention declared moot; and (2) the intervenor to file a new/amended contention, with the accompanying briefing and Board decision, so as to have the wording of the previously admitted contention changed to reflect that the

issue statement's focus is now the Staff's environmental document rather than the applicant's ER.

#### **RULES OF PRACTICE: CONTENTIONS (NEPA MIGRATION TENET)**

The critique of the impact of a Staff environmental document on an already-admitted ER-based environmental contention usually goes to whether (1) a contention of omission can migrate or has been cured, to the degree that purported missing information/analysis has been provided so that a summary disposition/dismissal motion may be appropriate for the admitted contention and a new contention is necessary to challenge the fresh information/analysis; or (2) a contention of adequacy can migrate or, because of information/analysis changes, can be sustained as a new/amended contention. Nonetheless, it also is possible that the Staff's environmental document might contain no information/analysis on a matter that was addressed in the ER and was the subject of an admitted contention of adequacy challenging the ER information/analysis. In such an instance, an intervenor challenge to the adequacy of an ER's information/analysis seemingly would, for all practical purposes, envelop a challenge based on the total lack of such information/analysis (assuming the challenge was not that the information/analysis should not be in ER), thereby permitting a contention of adequacy to migrate into a contention of omission.

#### **RULES OF PRACTICE: CONTENTIONS (NEW OR AMENDED)**

Post-ER an intervenor would need to file a motion to amend an already-admitted contention or to admit a new contention if the information in the Staff's NEPA statement is sufficiently different from the information in the ER that supported the original contention's admission. *See Vogtle*, LBP-08-2, 67 NRC at 63-64. And a new/amended contention regarding portions of the Staff's post-ER NEPA statement that differ from the ER also must meet the "good cause" and contention admissibility standards of section 2.309(c)(1) and (f)(1) to be admitted. *See McGuire/Catawba*, CLI-02-28, 56 NRC at 382 ("While a contention contesting an applicant's [ER] generally may be viewed as a challenge to the NRC Staff's subsequent draft EIS, new claims must be raised in a new or amended contention."); *Vogtle*, LBP-08-2, 67 NRC at 64 (explaining that, if the portion of the ER that an admitted contention challenges is not sufficiently similar to the draft EIS, "an intervenor attempting to litigate an issue based on expressed concerns about the [draft EIS] may need to amend the admitted contention or, if the information in the [draft EIS] is sufficiently different from that in the ER that supported the contention's admission, submit a new contention").

## **RULES OF PRACTICE: CONTENTIONS (NEPA MIGRATION TENET)**

Nothing in the agency's rules of practice precludes an intervenor from submitting a motion that attempts to invoke the migration tenet or a board from considering that precept's application in response to such a motion.

## **RULES OF PRACTICE: CONTENTIONS (SCOPE)**

In appropriate circumstances, a board should endeavor to define the scope of a contention in light of the foundational support that leads to its admission, *see Crow Butte Resources, Inc.* (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 553 (2009) (observing that to define scope of admitted contention properly, board should have specified which bases were admitted); *see also Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-899, 28 NRC 93, 97 (1988) ("The reach of a contention necessarily hinges upon its terms coupled with its stated bases."), *aff'd sub nom. Massachusetts v. NRC*, 924 F.2d 311 (D.C. Cir. 1991).

## **RULES OF PRACTICE: CONTENTIONS (IMPACT OF SER OR APPLICANT POST-HEARING PETITION LICENSING REVIEW SUBMISSION ON NEPA-RELATED CONTENTION)**

Regarding the argument that the Staff's SER and/or one or more of an applicant's post-hearing petition licensing review submissions to the Staff, whether in response to a Staff request for additional information (RAI) or otherwise, have the consequence of rendering a resubmitted environmental contention moot or untimely under section 2.309(c)(1), expressing no view on whether it is possible for an SER to moot an environmental contention, to the degree this argument is footed in NEPA-related RAIs, assertions of contention mootness or untimeliness based on such documents generally should be raised prior to the issuance of a Staff environmental document. Such a timely filed motion would be based on the SER or applicant information having become available and having mooted or otherwise enervated the admitted environmental contention as it alleges an omission/analysis deficiency relative to the ER so as to require the filing of a new/amended contention that has not been properly proffered. In the absence of such a motion filed prior to the Staff environmental document, the Staff SER or such applicant information generally would become relevant as impacting an admitted environmental contention only to the degree the SER or applicant information is actually utilized as part of a subsequent Staff environmental document. Moreover, the timeliness of a new/amended contention motion relating to that information seemingly would be determined based on the availability

of the Staff's environmental document, rather than the SER or the applicant's information, as the filing "trigger" for the motion.

**RULES OF PRACTICE: CONTENTIONS (ADDRESSING  
NEW/AMENDED CONTENTION GOOD CAUSE REQUIREMENT  
OR ADMISSIBILITY STANDARDS WHEN INVOKING  
MIGRATION TENET)**

If there is any question about whether the migration tenet is applicable, in the absence of a timely analysis of the section 2.309(c)(1) and (f)(1) new/amended contention precepts by the contention's sponsor, a board is not obligated to determine whether those new/amended contention requirements could have been met relative to the "migrated" environmental contention. *See Boston Edison Co.* (Pilgrim Nuclear Power Station), ALAB-816, 22 NRC 461, 465-68 (1985). Accordingly, a contention's sponsor may choose not to make any submission regarding an admitted ER-based environmental contention it believes properly will migrate and can simply await an applicant or Staff filing challenging the contention's continued viability in light of the Staff's environmental document. But if there is any question about whether an admitted contention merits a new/amended contention motion relative to the Staff's environmental document, the best approach seemingly would be to make a filing that treats the contention as if it were new/amended or, perhaps most prudently, argues in the alternative.

**NEPA: ENVIRONMENTAL IMPACT STATEMENT (TIMING)**

Under NEPA § 102(2)(C), 42 U.S.C. § 4332(2)(C), which requires that an agency create an environmental impact statement (EIS), "the moment at which an agency must have a final statement ready 'is the time at which it makes a recommendation or report on a *proposal* for federal action.'" *Kleppe v. Sierra Club*, 427 U.S. 390, 405-06 (1976) (quoting *Aberdeen & Rockfish R.R. Co. v. Students Challenging Regulatory Agency Procedures*, 422 U.S. 289, 320 (1975)).

**NEPA: ENVIRONMENTAL IMPACT STATEMENT (INCLUSION OF RELATED ACTIONS); SEGMENTATION**

An EIS should be issued to include other related actions only when those related actions have been formally proposed and are pending before the relevant agency. NEPA "does not require an agency to consider the possible environmental impacts of less imminent actions when preparing the impact statement on proposed actions." *Kleppe*, 427 U.S. at 410 & n.20; *see id.* at 410 ("[W]hen several proposals for . . . actions that will have cumulative or synergistic environmental impact

upon a region are *pending concurrently* before an agency, their environmental consequences must be considered together.” (emphasis added)).

#### **NEPA: ENVIRONMENTAL IMPACT STATEMENT (INCLUSION OF RELATED ACTIONS); SEGMENTATION**

“[T]o bring NEPA into play, a possible future action must at least constitute a ‘proposal’ pending before the agency (i.e., ripeness), and must be in some way interrelated with the action that the agency is actively considering (i.e., nexus).” *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278, 295 (2002).

#### **NEPA: ENVIRONMENTAL IMPACT STATEMENT (INCLUSION OF RELATED ACTIONS; SCOPE); SEGMENTATION (CONNECTED ACTIONS; CUMULATIVE ACTIONS; SIMILAR ACTIONS)**

Under 40 C.F.R. § 1508.25(a), the Council on Environmental Quality regulation that outlines the scope or range of actions that should be considered in an EIS, three types of actions are to be considered in looking to the scope of an EIS: connected, cumulative, and similar. To determine whether actions are “connected” such that they “should” be discussed in the same EIS, section 1508.25(a)(1) indicates that an agency is to consider whether the actions (1) “automatically trigger” other actions that may require an EIS; (2) “[c]annot or will not proceed unless other actions are taken previously or simultaneously”; or (3) “[a]re interdependent parts of a larger action and depend on the larger action for their justification.” 40 C.F.R. § 1508.25(a)(1)(i)-(iii). “Cumulative” actions, on the other hand, are those that, “when viewed with other proposed actions[,] have cumulatively significant impacts” so that they “should” be discussed in the same EIS. *Id.* § 1508.25(a)(2). And finally “similar” actions are those that, “when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental impacts together, such as common timing or geography,” so that the agency “may wish to analyze them together.” *Id.* § 1508.25(a)(3).

#### **NEPA: ENVIRONMENTAL IMPACT STATEMENT (INCLUSION OF RELATED ACTIONS); SEGMENTATION (CONNECTED ACTIONS; INDEPENDENT UTILITY)**

With respect to whether potential ISR sites are “connected” proposals per section 1508.25(a)(1), the relevant criterion appears to be whether, in accord with paragraph (iii), the requisite “interdependence” exists among the various actions

at issue. In making this determination, courts generally have looked to see whether the first action has “independent utility.” *Thomas v. Peterson*, 753 F.2d 754, 759 (9th Cir. 1985); *see also McGuire/Catawba*, CLI-02-14, 55 NRC at 297 (“[W]hen developing an EIS, an agency must consider the impact of other proposed projects ‘only if the projects are so interdependent that it would be unwise or irrational to complete one without the other.’” (quoting *Webb v. Gorsuch*, 699 F.2d 157, 161 (4th Cir. 1983))).

#### **RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS (BOARD CONSTRUCTION OF SUPPORTING INFORMATION)**

Recognizing that a board may appropriately view a petitioner’s supporting information in a light favorable to the petitioner, *see Arizona Public Service Co.* (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), CLI-91-12, 34 NRC 143, 155 (1991), it is also the case that neither mere speculation nor bare or conclusory assertions, even by an expert, will suffice to allow the admission of a proffered contention, *see Fansteel, Inc.* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195, 203 (2003).

#### **NEPA: ENVIRONMENTAL IMPACT STATEMENT (INCLUSION OF RELATED ACTIONS); SEGMENTATION (CONNECTED ACTIONS; INDEPENDENT UTILITY)**

An intervenor’s failure to provide anything concrete to support the central premise that the ISR facility at issue in a proceeding “may” not be economically viable without licensing/operating the other proposed ISR facilities in the vicinity is wholly inadequate to support the admission of an illegal segmentation contention.

#### **NEPA: ENVIRONMENTAL IMPACT STATEMENT (INCLUSION OF RELATED ACTIONS); SEGMENTATION (CONNECTED ACTIONS; INDEPENDENT UTILITY)**

Denoting aspects of the ISR facility licensing proposal at issue in the proceeding that will permit economic and operational efficiency if the applicant successfully carries out its apparent plan to have other nearby sites licensed is not the same as showing that the ISR facility at issue itself lacks any “independent utility” such that its licensing and operation would not go forward absent the licensing and operation of the other ISR sites.

**NEPA: ENVIRONMENTAL IMPACT STATEMENT (INCLUSION OF RELATED ACTIONS); SEGMENTATION (CONNECTED ACTIONS; INDEPENDENT UTILITY)**

Assertions all supporting the premise that there is a strong likelihood that an applicant intends that eventually all its nearby ISR sites will be licensed and operating are not the same as showing, as would be pertinent to the question of whether the ISR facility at issue in a proceeding is a “connected” action as defined in section 1508.25(a)(1), that the ISR facility at issue lacks any independent utility in the absence of the completion of the other ISR sites.

**NEPA: ENVIRONMENTAL IMPACT STATEMENT (INCLUSION OF RELATED ACTIONS); SEGMENTATION (CUMULATIVE ACTIONS)**

The fact that the Staff previously supported the need for a cumulative impacts analysis, *see* LBP-12-3, 75 NRC at 200, 203, which it now has provided in the DSEIS regarding the applicant’s other nearby ISR sites, at least suggests that, consistent with section 1508.25(a)(2), there are “cumulative actions” that might need full NEPA consideration in the same impact statement.

**NEPA: ENVIRONMENTAL IMPACT STATEMENT (INCLUSION OF RELATED ACTIONS); SEGMENTATION (SIMILAR ACTIONS)**

While the courts have recognized that the permissive “may” language of section 1508.25(a)(3) affords an agency more discretion in making a choice about whether a single EIS is the “best way” to assess “similar” actions, *Klamath-Siskiyou Wildlands Center v. Bureau of Land Management*, 387 F.3d 989, 1001 (9th Cir. 2004), the geographic proximity of the ISR site at issue in this proceeding to the other nearby ISR sites and the apparent timing of the future licensing actions for these other ISR sites vis-à-vis the ISR site at issue seemingly would be relevant in determining whether they are “similar” actions under that provision so as to merit consideration in a single impact statement.

**MEMORANDUM AND ORDER**  
**(Ruling on Motion to Resubmit Contentions**  
**and to Admit a New Contention)**

Previously, in a February 2012 ruling, this Licensing Board admitted four

contentions submitted by Joint Intervenors<sup>1</sup> challenging certain National Environmental Policy Act of 1969 (NEPA)-related/environmental aspects of the pending request of Strata Energy, Inc. (SEI) for a 10 C.F.R. Part 40 license authorizing SEI to possess and use the nuclear source material that would be generated by its operation of an in situ uranium recovery (ISR) facility on the Ross ISR Uranium Project site.<sup>2</sup> See LBP-12-3, 75 NRC 164, 210, *aff'd in part and review declined*, CLI-12-12, 75 NRC 603 (2012) (affirming standing ruling and declining review as to contention admissibility rulings). Some 13 months later, the Nuclear Regulatory Commission (NRC) Staff issued its draft of a supplement to the agency's generic environmental impact statement (EIS) on ISR facilities providing the Staff's preliminary NEPA-mandated assessment of the SEI license application. See Letter from Emily Monteith, NRC Staff Counsel, to Licensing Board at 1 (Mar. 21, 2013); *see also* Office of Federal and State Materials and Environmental Management Programs, NRC, [Draft EIS] for the Ross ISR Project in Crook County, Wyoming; Supplement to the Generic [EIS] for *In-Situ* Leach Uranium Milling Facilities, NUREG-1910 (supp. 5 Mar. 2013) (ADAMS Accession No. ML13078A036) [hereinafter DSEIS]. Thereafter, Joint Intervenors filed a motion seeking to (1) "resubmit" their four pending environmental contentions in light of the Staff's draft supplemental EIS (DSEIS); and (2) admit an additional NEPA-related contention. See [Joint Intervenors'] Motion to Resubmit Contentions & Admit One New Contention in Response to Staff's [DSEIS] (May 6, 2013) at 1-2 [hereinafter Joint Intervenors Motion]. SEI and the Staff oppose the motion on both counts. [SEI] Response to [Joint Intervenors'] New and Amended Contentions on [DSEIS] (June 3, 2013) at 1 [hereinafter SEI Response]; NRC Staff's Response to [Joint Intervenors'] Motion to Resubmit Contentions and Admit One New Contention in Response to Staff's [DSEIS] (June 3, 2013) at 1 [hereinafter Staff Response].

For the reasons stated herein, we grant Joint Intervenors' motion to "resubmit" as to three of their four admitted contentions and deny their request to admit a new contention.

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<sup>1</sup> Joint Intervenors are public interest groups the Natural Resources Defense Council (NRDC) and the Powder River Basin Resource Council.

<sup>2</sup> Not unexpectedly, contentions regarding matters associated with how the NEPA-related aspects of the agency's licensing review process are being carried out often are referred to as "environmental" contentions. While recognizing that, if properly framed, a matter associated with the environment (e.g., disposal of radiologically contaminated wastewater) can be the foundational support for a contention (e.g., groundwater contamination from radiologically contaminated wastewater) that raises concerns regarding what would generally be considered a "safety" issue under the Atomic Energy Act (AEA), *cf.* LBP-12-3, 75 NRC at 192 (rejecting attempt to "bootstrap" NEPA-related contentions into AEA safety contentions by asserting failure to fulfill NEPA responsibilities violates AEA), in this instance, when referring to Joint Intervenors' contentions, we will use the terms "NEPA-related" and "environmental" interchangeably.

## I. BACKGROUND

Because a detailed exposition of the regulatory and procedural background of this proceeding can be found in the Board's decision admitting Joint Intervenors' four NEPA-related contentions, *see LBP-12-3*, 75 NRC at 174-76, we pick up the narrative thread here by noting that in its April 2012 initial scheduling order, the Board outlined the process whereby, in accordance with 10 C.F.R. § 2.309(c),<sup>3</sup> Joint Intervenors could seek to amend those contentions or submit new issue statements to reflect developments in this proceeding. *See Licensing Board Memorandum and Order (Prehearing Conference and Initial Scheduling Order)* (Apr. 10, 2012) at 4 (unpublished) [hereinafter Initial Scheduling Order]. One such development recognized in that issuance was the Staff's release of its DSEIS for the proposed Ross ISR facility.<sup>4</sup> *See id.* App. A, at 1. With the release of that Staff document in late March 2013, after jointly seeking and gaining an extension of the filing deadlines for motions for new/amended contentions and the associated responses set forth in the Board's previous scheduling orders, *see Licensing Board Memorandum and Order (Revised General Schedule)* (Apr. 12, 2013) at 1-3 (unpublished) [hereinafter Revised General Schedule], the parties filed several pleadings consistent with the revised schedule. These consisted of the previously referenced motion from Joint Intervenors seeking to "resubmit" their four admitted NEPA-related contentions and have a new environmental contention admitted for litigation and the SEI and Staff responses opposing those requests, along with a reply from Joint Intervenors to the SEI and Staff answers, *see [Joint Intervenors'] Reply in Support of Motion to Resubmit Contentions & Admit One New Contention in Response to Staff's [DSEIS]* (June 17, 2013) [hereinafter Joint Intervenors Reply].

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<sup>3</sup>This proceeding was instituted before changes to various provisions of 10 C.F.R. Part 2, including section 2.309(c), became effective in September 2012. *See Final Rule: "Amendments to Adjudicatory Process Rules and Related Requirements,"* 77 Fed. Reg. 46,562, 46,562 (Aug. 3, 2012). Nonetheless, as the Board advised the parties, in the absence of a Board order continuing some aspect of the proceeding under the prior rules, the September 2012 Part 2 revisions are applicable in this proceeding. *See Licensing Board Memorandum and Order (Requesting Scheduling Input)* (Aug. 7, 2012) at 1-3 (unpublished); *see also Licensing Board Memorandum and Order (Recent Part 2 Changes and General Schedule Revisions)* (Aug. 21, 2012) at 1-3 (unpublished).

<sup>4</sup>Another was the Staff's issuance of its safety evaluation report (SER) for the proposed Ross ISR facility, *see Initial Scheduling Order App. A, at 1*, which occurred in late February 2013, *see Letter from Emily Monteith, NRC Staff Counsel, to Licensing Board at 1* (Mar. 4, 2013), but which did not engender any new/amended contention filing from Joint Intervenors.

## II. ANALYSIS

### A. Standards Governing the Admission of New/Amended Contentions

The ability of a petitioner or intervenor to have a contention accepted into a proceeding for further litigation, whether as part of its initial hearing petition or thereafter, rests upon whether the submitter can satisfy the twin precepts of timeliness and admissibility. Section 2.309 of the agency's Rules of Practice, which sets forth the standards governing contention admission, speaks to both of these elements. Below, we outline how each of these factors plays a role in the admission of a post-initial hearing petition, i.e., a new or amended, contention.

#### 1. *“Good Cause” for the Submission of New/Amended Contentions*

Under section 2.309(c)(1), after the section 2.309(b) deadline has passed for submitting an initial hearing petition with one or more accompanying contentions, a petitioner/intervenor that wishes either to (1) amend an already submitted or admitted contention; or (2) gain the admission of a new contention must file a motion for leave to file such a new or amended contention. Further, under section 2.309(c)(1), the timing of the submission of a new/amended contention comes into play to the extent that consideration of whether a new/amended contention can be admitted/adopted is dependent on whether, regardless of the issue statement's substantive sufficiency, a presiding officer can conclude that the petitioner/intervenor has demonstrated “good cause” for its post-initial hearing petition deadline filing, based on the following three factors:

- (i) The information upon which the filing is based was not previously available;
- (ii) The information upon which the filing is based is materially different from information previously available; and
- (iii) The filing has been submitted in a timely fashion based on the availability of the subsequent information.

10 C.F.R. § 2.309(c)(1)(i)-(iii).

While these first two “good cause” factors relate to the nature of the information that is being employed as the basis for the new/amended contention, the third concerns the timeliness of the submission of that information in support of a request to admit the new/amended contention. This factor involves the question whether the new/amended contention and the associated information that is the basis for the contention, even if newly available and materially different from any information that was previously available, nonetheless were seasonably submitted. And, in contrast to section 2.309(b)'s provisions relating to an initial hearing petition, *see* 10 C.F.R. § 2.309(b) (defining the timeliness of an initial

hearing petition in different situations as being filed between 20 and 60 days after certain specified events), section 2.309(c)(1)(iii) does not stipulate what is considered “timely.” As it turns out, the degree to which the new/amended contention and its otherwise newly available and materially different supporting information will be considered timely submitted is, as in this case, generally defined by the presiding officer as a specific period following the “triggering event” that makes the not previously available/materially different information available so as to be the basis for the new/amended contention.<sup>5</sup> See Revised General Schedule at 1 (noting filing time for new/amended contentions initially set at 30 days after triggering event, such as issuance of DSEIS); *see also* Licensing Board Memorandum and Order (Initial Prehearing Order) (Nov. 3, 2011) at 4 n.3 (unpublished) (to be considered timely, motions seeking admission of new/amended contentions should be filed within 30 days of the date upon which the information that is the basis of the motion becomes available).

## **2. Admissibility of New/Amended Contentions**

As is the case with a contention submitted in support of an initial hearing petition, under section 2.309(c)(4) a new or amended contention generally must meet the six admissibility factors specified in section 2.309(f)(1), which in relevant part require that for each contention the submitter

- (i) Provide a specific statement of the issue of law or fact to be raised or controverted . . . ;
- (ii) Provide a brief explanation of the basis for the contention;
- (iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;
- (iv) Demonstrate that the issue raised in the contention is material to the finding the NRC must make to support the action that is involved in the proceeding;
- (v) Provide a concise statement of the alleged facts or expert opinions which support the requestor’s/petitioner’s position on the issue and on which the petitioner intends to rely at hearing . . . ;

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<sup>5</sup> As is made clear in the discussion in the statement of considerations supporting the September 2012 Part 2 rule change, *see* 77 Fed. Reg. at 46,571-72, the time for submitting a new/amended contention motion based on information that would be newly available, materially different, and otherwise timely submitted given the information’s availability can be extended if the extension request is based on “good cause,” as that term is defined in 10 C.F.R. § 2.307, or the presiding officer approves the parties’ stipulation of a different filing time. In this instance, the parties jointly sought and obtained an extension of the Board’s general schedule deadline for filing new/amended contention motions and the associated responsive pleadings relative to the Staff’s DSEIS. *See* Revised General Schedule at 2-3.

(vi) . . . [P]rovide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact . . .

10 C.F.R. § 2.309(f)(1)(i)-(vi); *see also* LBP-12-3, 75 NRC at 190-91.

### **3. Application of the “Migration” Tenet**

Although a motion addressing the section 2.309(c)(1) and (f)(1) factors described in sections II.A.1 and .2, above, generally must be submitted to permit the admission of a new/amended contention, there is a recognized exception for licensing proceedings in the case of NEPA-related contentions. Such contentions initially are based on the environmental report (ER) submitted by the applicant to fulfill its NEPA-related responsibilities under 10 C.F.R. Part 51 to provide the Staff with information and analysis that will inform the Staff’s NEPA review. *See* 10 C.F.R. § 2.309(f)(2). And if the Staff in preparing its NEPA impact statement does indeed adopt the ER-associated information/analysis that was challenged as inadequate, or, alternatively, maintains the same omission that was alleged to be in the ER,<sup>6</sup> it has been acknowledged that the issues those ER-based admitted contentions raise can essentially transmute into challenges to the Staff’s NEPA statement.<sup>7</sup> *See Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-01-23, 54 NRC 163, 172 n.3 (2001); *see also Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47

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<sup>6</sup> It has been recognized that the issues framed in contentions challenging an application generally encompass two categories, i.e., those that allege an informational or analytical omission from the application and those that allege that the information/analysis in the application is inadequate (as opposed to missing). *See Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-28, 56 NRC 373, 382-83 (2002) (“There is, in short, a difference between contentions that merely allege an ‘omission’ of information and those that challenge substantively and specifically how particular information has been discussed in a license application.”); *see also Powertech USA, Inc.* (Dewey-Burdock In Situ Uranium Recovery Facility), LBP-13-9, 78 NRC 37, 47-48 (2013) (providing general discussion about contentions of omission and contentions of adequacy).

<sup>7</sup> Consistent with the general principle that, because the primary responsibility to address and comply with AEA safety-related requirements resides with a license applicant, so that the application, not the Staff’s application review, is the focus of any safety-related contentions, *see Curators of the University of Missouri* (TRUMP-S Project), CLI-95-8, 41 NRC 386, 396 (1995); *Curators of the University of Missouri* (TRUMP-S Project), CLI-95-1, 41 NRC 71, 121-22 (1995), issuance of the Staff’s SER generally would not trigger this migration tenet. Rather, if anything in the Staff’s SER is considered as impacting an admitted license application-based safety contention or creating a new safety concern, as a general rule that matter would need to be raised, relative to an admitted safety contention, in the context of the merits disposition of the already admitted safety contention or, in the case of a new issue (and presuming such a Staff safety review-triggered contention is admissible), as a wholly new safety contention.

NRC 77, 84 (1998). Somewhat ironically, however, this migration tenet reflects a situation that, strictly speaking, is in juxtaposition to what is contemplated as necessary under the “not previously available” and “materially different” provisos of section 2.309(c)(1)(i)-(ii) governing new/amended contention admission. This is because the invocation of this tenet has the effect of automatically “amending” the contention to substitute the Staff’s environmental review impact statement information/analysis (relative to a contention of adequacy) or lack of information/analysis (relative to a contention of omission) as the foundational support for the contention without filing a new/amended contention motion addressing either the section 2.309(c)(1) or (f)(1) factors.<sup>8</sup> This tenet is applicable, however, only if the information in the Staff’s post-ER NEPA statement is “sufficiently similar to the information in the ER,” i.e., essentially in pari materia with the ER information/analysis, or lack of information/analysis, that is the focus of the contention.<sup>9</sup> See *Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), LBP-08-2, 67 NRC 54, 63-64 (2008); see also *Dewey-Burdock*, LBP-13-9, 78 NRC at 46-47; *Detroit Edison Co.* (Fermi Nuclear Power Plant, Unit 3), LBP-12-23, 76 NRC 445, 470-71 (2012); *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-11-1, 73 NRC 19, 26 (2011).

On the other hand, post-ER an intervenor would need to file a motion to amend an already-admitted contention or to admit a new contention if the information in the Staff’s NEPA statement is sufficiently different from the information in the ER that supported the original contention’s admission. See *Vogtle*, LBP-08-2, 67 NRC at 63-64. And a new/amended contention regarding portions of the Staff’s post-ER NEPA statement that differ from the ER also must meet the

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<sup>8</sup>The “migration tenet” serves a useful administrative efficiency purpose in that it dispenses with the need for (1) the applicant/Staff to file a dismissal/dispositive motion, with the accompanying party filings and Board decision, so as to have the admitted contention declared moot; and (2) the intervenor to file a new/amended contention, with the accompanying briefing and Board decision, so as to have the wording of the previously admitted contention changed to reflect that the issue statement’s focus is now the Staff’s environmental document rather than the applicant’s ER.

<sup>9</sup>The critique of the impact of a Staff environmental document on an already-admitted ER-based environmental contention usually goes to whether (1) a contention of omission can migrate or has been cured, to the degree that purported missing information/analysis has been provided so that a summary disposition/dismissal motion may be appropriate for the admitted contention and a new contention is necessary to challenge the fresh information/analysis; or (2) a contention of adequacy can migrate or, because of information/analysis changes, can be sustained as a new/amended contention. Nonetheless, it also is possible that the Staff’s environmental document might contain no information/analysis on a matter that was addressed in the ER and was the subject of an admitted contention of adequacy challenging the ER information/analysis. In such an instance, an intervenor challenge to the adequacy of an ER’s information/analysis seemingly would, for all practical purposes, envelop a challenge based on the total lack of such information/analysis (assuming the challenge was not that the information/analysis should not be in ER), thereby permitting a contention of adequacy to migrate into a contention of omission.

“good cause” and contention admissibility standards of section 2.309(c)(1) and (f)(1) to be admitted. *See Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-28, 56 NRC 373, 382 (2002) (“While a contention contesting an applicant’s [ER] generally may be viewed as a challenge to the NRC Staff’s subsequent draft EIS, new claims must be raised in a new or amended contention.”); *Vogtle*, LBP-08-2, 67 NRC at 64 (explaining that, if the portion of the ER that an admitted contention challenges is not sufficiently similar to the [draft EIS], “an intervenor attempting to litigate an issue based on expressed concerns about the [draft EIS] may need to amend the admitted contention or, if the information in the [draft EIS] is sufficiently different from that in the ER that supported the contention’s admission, submit a new contention”).

#### **B. Post-DSEIS Litigability of Joint Intervenors’ “Resubmitted” Contentions**

With respect to the four ER-based contentions that were admitted by the Board in ruling on their initial hearing petition, Joint Intervenors have filed a motion that “resubmits” these contentions as purportedly litigable post-DSEIS issue statements. Further, Joint Intervenors have proffered these previously admitted contentions with essentially the same language that was found admissible, with two exceptions: Everywhere the term “application” was used in the admitted contention, they have substituted the term “DSEIS,” thereby referencing the Staff’s draft supplemental EIS, and they have added citations to 10 C.F.R. §§ 51.70, 51.71, to reflect that fact that these contentions now challenge the Staff’s DSEIS rather than the SEI ER.<sup>10</sup> *See* Joint Intervenors Motion at 6 n.3, 10 n.7, 13 n.9, 16 n.10. Joint Intervenors also have filed additional expert statements — the declarations of Dr. Richard Abitz and Christopher E. Paine — that they assert support these “resubmitted” contentions. *See id.* at 6, 10, 13, 16; *see also id.* unnumbered attach. 1 (Second Declaration of Dr. Richard Abitz on Behalf of [Joint Intervenors] (May 6, 2013)) [hereinafter Abitz Declaration]; *id.* unnumbered attach. 2 (Declaration of Christopher E. Paine on Behalf of [Joint Intervenors] in Support of Contentions 4/5A and 6 (May 6, 2013)) [hereinafter Paine Declaration].

Joint Intervenors refer to these four contentions as being “amended.” *Id.* at 1. Nonetheless, in connection with these issue statements Joint Intervenors make

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<sup>10</sup> Although Joint Intervenors’ proposed “resubmitted” contentions retained their admitted contention’s references to 10 C.F.R. § 51.45, which describes the requirements applicable to an ER, that citation is no longer relevant in an instance when an admitted ER-related contention migrates to a challenge to the Staff’s DSEIS. Accordingly, that citation will be removed from any of the contentions we conclude are subject to the migration tenet.

no mention of the “good cause” provisions of section 2.309(c)(1) or the section 2.309(f)(1) admissibility standards that are applicable to all new or amended contentions. It thus seems apparent that for these four contentions they are seeking to employ, albeit without specifically invoking it by name, the “migration tenet” discussed in section II.A.3, above. Of course, as the section II.A.3 discussion makes clear, and as Joint Intervenors themselves acknowledge, *see id.* at 2, in such instances it is not necessary to file a motion seeking to amend the contention. On the other hand, there is nothing in the agency’s rules of practice that precludes an intervenor from submitting a motion that attempts to invoke that tenet, which Joint Intervenors seemingly have done here, or a board from considering that precept’s application in response to such a motion, which we do now.<sup>11</sup>

#### **1. Environmental Contention 1:<sup>12</sup> The DSEIS Fails to Adequately Characterize Baseline (i.e., Original or Pre-mining) Groundwater Quality**

**CONTENTION:** The DSEIS fails to comply with 10 C.F.R. §§ 51.70 and 71, 10 C.F.R. Part 40, Appendix A, and NEPA because it lacks an adequate description of the present baseline (i.e., original or pre-mining) groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner, using proper sampling methodologies. The DSEIS’s departure from NRC guidance serves as additional evidence of these regulatory violations. NRC, NUREG-1569, Standard Review Plan for In Situ Leach Uranium Extraction License Applications, §§ 2.7.1, 2.7.3, 2.7.4 (2003).

**DISCUSSION:** Joint Intervenors Motion at 5-9; SEI Response at 8-11; Staff Response at 8-14; Joint Intervenors Reply at 8-12.

**RULING:** In the context of admitting this contention, the Board found unpersuasive SEI’s and the Staff’s arguments that, under 10 C.F.R. § 51.45, SEI was not required (and perhaps was even precluded under section 40.32(e) from seeking) to establish a baseline water quality for the Ross facility site until after any grant

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<sup>11</sup> Although the Board did not establish a filing schedule for such a “resubmission” motion, which, unlike a section 2.309(c) new/amended contention request, is not specifically contemplated under the agency’s procedural rules, we have no difficulty in concluding that, having been submitted within the Board-established time frame for new/amended contention motions regarding the Staff’s DSEIS, Joint Intervenors’ “resubmission” motion was timely.

<sup>12</sup> Because of an apparent concern about preserving litigation issues, *see* Joint Intervenors Motion at 2, Joint Intervenors have renumbered their four resubmitted contentions by giving each the additional alpha designator “A.” Because the question before us is whether these contentions are suitable for migration and renumbering these contentions would, in our estimation, have no impact on any future appellate issues that might be raised regarding their litigability, we see no reason to change the previous numbering system.

of a Part 40 license to SEI. Moreover, given this and the information provided in support of Joint Intervenors' contention regarding the adequacy of SEI's showing in its ER concerning such a baseline, the Board concluded there was a genuine dispute about a material issue concerning whether SEI in its ER had in fact provided the Staff with sufficient information concerning facility baseline water quality so as to allow the Staff to provide an adequate NEPA assessment of the impacts of facility operation on water quality. *See* LBP-12-3, 75 NRC at 195. In seeking to "resubmit" this contention, Joint Intervenors declare that in its DSEIS the Staff has simply carried this problem forward by utilizing SEI information that does not meet the 10 C.F.R. Part 40, App. A, Criterion 5B(5)(a) and Criterion 7 standards on "background" groundwater constituents and "complete baseline data" for an ISR site, as those are to be implemented pursuant to the Staff's NUREG-1569 guidance to applicants to provide "[r]easonably comprehensive" water sampling data shown to be "collected by acceptable sampling procedures," Office of Nuclear Material Safety and Safeguards, NRC, Standard Review Plan for In Situ Leach Uranium Extraction License Applications, NUREG-1569, at 2-24 (June 2003) [hereinafter NUREG-1569], so as to furnish the baseline water quality data needed for an adequate Staff NEPA analysis. Further, according to Joint Intervenors, it still is apparent from the DSEIS that SEI and the Staff intend to postpone collecting the information that possibly could meet these Part 40, Appendix A standards (using methods that might satisfy the Staff's NUREG-1569 guidance) until after a license is issued to SEI, which Joint Intervenors assert is too late to satisfy the Staff's NEPA responsibilities. *See* Joint Intervenors Motion at 7, 8-9. For its part the Staff, while noting that its DSEIS does contain "baseline" water quality data, states that the data required by Appendix A "is not required to be provided at this time and does not yet exist," Staff Response at 10, a conclusion with which SEI appears to agree, *see* SEI Response at 10-11.

Under the circumstances, we find that the central analytical deficiency alleged by Joint Intervenors' environmental contention 1 with regard to the SEI ER applies with equal force to the DSEIS. As a consequence, the migration tenet applies and this contention, as specified in Appendix A to this issuance with the substituted references to the DSEIS, moves forward as an admitted post-DSEIS issue statement.<sup>13</sup>

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<sup>13</sup>In its response to Joint Intervenors' motion, SEI indicated that if this contention advances for further litigation, it intends to file a dispositive motion. *See* SEI Response at 11 n.5. The parties are reminded that such a motion (or motions) and any responsive filings should comply with the Board-specified administrative directives and schedule governing summary disposition motions. *See* Licensing Board Memorandum and Order (Prehearing Conference and Initial Scheduling Order) (Apr. 10, 2012) at 5-7 (unpublished); Revised General Schedule App. A, at 1.

**2. Environmental Contention 2: The DSEIS Fails to Analyze the Environmental Impacts That Will Occur if the Applicant Cannot Restore Groundwater to Primary or Secondary Limits**

CONTENTION: The DSEIS fails to meet the requirements of 10 C.F.R. §§ 51.70, 51.71 and NEPA because it fails to evaluate the virtual certainty that the applicant will be unable to restore groundwater to primary or secondary limits.

DISCUSSION: Joint Intervenors Motion at 10-12; SEI Response at 11-15; Staff Response at 14-18; Joint Intervenors Reply at 12-15.

RULING: In initially considering this challenge to the SEI ER, the Board noted that the point of contention was not whether SEI would be unable to restore groundwater quality to primary or secondary limits following the conclusion of operations at the Ross facility, but whether such a happenstance would be a nonspeculative “irreversible and irretrievable commitment[ ] of resources” such that the ER needed to provide an impacts analysis of such an occurrence. LBP-12-3, 75 NRC at 196 (quoting 10 C.F.R. § 51.45(b)(5)); *see* NEPA § 102(2)(C)(v), 42 U.S.C. § 4332(2)(C)(v). The Board concluded that, based on their showing relative to the section 2.309(f)(1) admissibility factors, Joint Intervenors had established a genuine dispute on a material issue concerning the need for such an analysis so as to merit the admission of environmental contention 2. Moreover, in doing so, the Board addressed several arguments proffered by SEI and the Staff as to why such an analysis, which Joint Intervenors’ claimed would require consideration of the impacts associated with utilizing a 10 C.F.R. Part 40, App. A, Criterion 5B(5)(c) alternate concentration limit (ACL), was not a viable possibility as a legal or technical matter. These included the assertion that an ACL could not be accurately generated until the post-operational decommissioning process, a claim that the Board noted did not account for the possible creation of a bounding analysis based on the historical experience at other ISR sites. *See id.* at 197.

In “resubmitting” this contention, Joint Intervenors maintain that nothing in the DSEIS constitutes a substantive change relative to the deficiency that environmental contention 2 identified as existing in the ER. The Staff, however, points to the following DSEIS discussion as addressing the purported lack of an analysis of the impacts of a failure by SEI to restore groundwater quality to primary or secondary limits:

The GEIS noted that water quality in the [ore zone (OZ)] aquifer would be degraded during ISR operations (NRC, 2009). A licensee would be required, by its [Wyoming Department of Environmental Quality] Permit to Mine and would be by its NRC license, to initiate aquifer-restoration activities to restore the OZ aquifer to preoperational conditions, if possible. *If the aquifer cannot be returned to post-licensing, pre-operational conditions described in [supplemental EIS (SEIS)] Section 2.1.1.1,* the NRC would require that the aquifer meet the U.S. Environmental Protection

Agency (EPA) maximum contaminant levels (MCLs) provided in 10 CFR Part 40, Appendix A, Table 5C or *Alternate Concentration Limits (ACLs)*, as approved by NRC (10 CFR Part 40; NRC, 2009b). For these reasons, the NRC determined in the GEIS that potential impacts to water quality of the uranium-bearing aquifer (i.e., ore zone, production zone or unit, or mineralized zone) as a result of ISR operations would be expected to be SMALL and temporary (NRC, 2009).

Staff Response at 17 (quoting DSEIS at 4-32 (emphasis in original)). This, according to the Staff, is the impacts analysis that Joint Intervenors' environmental contention 2 claimed was missing from the ER. As such, the Staff asserts, it is the adequacy of this assessment that Joint Intervenors must contest, requiring that they show a genuine material dispute with this analysis in accord with section 2.309(f)(1)(vi).

It is true that this statement in the DSEIS does, in a general way, address the issue of the environmental impact if SEI cannot restore groundwater to primary or secondary limits. It also is apparent, however, that the DSEIS does not, as the ER did not, address the matter that is the crux of the concern engendered in admitted environmental contention 2, i.e., given that reasonably foreseeable environmental impacts are to be outlined in an agency's NEPA statement and that an ACL realistically may be necessary at the time of facility decommissioning, within a reasonable range, what is that ACL likely to look like and what are the associated environmental impacts associated with such an ACL. As a consequence, because we consider this matter as admitted relative to the SEI ER to still be at issue relative to the Staff's DSEIS, we find the migration tenet is applicable so as to allow this contention to move forward in this litigation post-DSEIS.

Nonetheless, given (1) Joint Intervenors' recognition that the claim posited by this contention is that the "DSEIS require[s] a bounding analysis and explanation of the environmental impacts that result from the eventual adoption of an ACL rather than primary or secondary groundwater standards," Joint Intervenors Motion at 12; and (2) the Commission's admonition that, in appropriate circumstances, a board should endeavor to define the scope of a contention in light of the foundational support that leads to its admission, *see Crow Butte Resources, Inc.* (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 553 (2009) (observing that to define scope of admitted contention properly, board should have specified which bases were admitted); *see also Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-899, 28 NRC 93, 97 (1988) ("The reach of a contention necessarily hinges upon its terms coupled with its stated bases."), *aff'd sub nom. Massachusetts v. NRC*, 924 F.2d 311 (D.C. Cir. 1991), we conclude the terms of environmental contention 2 can be outlined here with more specificity as follows:

Environmental Contention 2: The DSEIS fails to analyze the environmental impacts that will occur if the applicant cannot restore groundwater to primary or secondary limits.

CONTENTION: The DSEIS fails to meet the requirements of 10 C.F.R. §§ 51.70, 51.71 and NEPA because it fails to evaluate the virtual certainty that the applicant will be unable to restore groundwater to primary or secondary limits in that the DSEIS does not provide and evaluate information regarding the reasonable range of hazardous constituent concentration values that are likely to be applicable if the applicant is required to implement an Alternative Concentration Limit (ACL) in accordance with 10 C.F.R. Part 40, App. A, Criterion 5B(5)(c).

Thus, as set forth above and in Appendix A to this issuance, this contention, as clarified, will move forward as an admitted post-DSEIS issue statement.

**3. *Environmental Contention 3: The DSEIS Fails to Include Adequate Hydrological Information to Demonstrate SEI's Ability to Contain Groundwater Fluid Migration***

CONTENTION: The DSEIS fails to assess the likelihood and impacts of fluid migration to the adjacent groundwater, as required by 10 C.F.R. §§ 51.70, 51.71 and NEPA, and as discussed in NUREG-1569 § 2.7.

DISCUSSION: Joint Intervenors Motion at 13-15; SEI Response at 15-18; Staff Response at 18-22; Joint Intervenors Reply at 15-18.

RULING: In admitting a portion of environmental contention 3 as originally proffered by Joint Intervenors, the Board concluded that a sufficient showing had been made regarding their particular claims about the adequacy of the ER discussion concerning “boreholes and aquifer isolation in the immediate vicinity of the Ross facility.” LBP-12-3, 75 NRC at 199. And in doing so, we referred to several portions of the supporting declarations of Drs. Moran, Sass, and Abitz regarding the implications of numerous purportedly unplugged boreholes and the results of SEI pumping tests relative to an assessment of the fluid migration impacts that might attain from operation of the Ross facility. *See id.* at 199. In seeking to “resubmit” this contention, Joint Intervenors assert that, as is made evident by the declaration of Dr. Abitz supporting their motion, the DSEIS discussion of boreholes and SEI pump tests makes it apparent that the thrust of Joint Intervenors’ claim regarding this alleged deficiency remains intact so as to maintain this aspect of this contention. *See* Joint Intervenors Motion at 14.

We agree and, in accord with the migration tenet, will move the contention

forward for post-DSEIS litigation on that basis.<sup>14</sup> Further, given (1) Joint Intervenors' recognition that this contention originally was intended to reflect their "precise concern" about the "risks of fluid migration due to the thousands of drillholes in the area," *id.*, as well as the fact that the focus of Dr. Abitz's technical disagreements with the DSEIS concerns boreholes and the SEI pump tests, *see* Abitz Declaration at 16-17; and (2) the Commission's direction to provide contention focus, *see supra* p. 138, which we note seems particularly apropos at this advanced stage of the proceeding, we conclude this contention's terms can be outlined here with more specificity as follows:

Environmental Contention 3: The DSEIS fails to include adequate hydrological information to demonstrate SEI's ability to contain groundwater fluid migration.

CONTENTION: The DSEIS fails to assess adequately the likelihood and impacts of fluid migration to the adjacent groundwater, as required by 10 C.F.R. §§ 51.70, 51.71 and NEPA, and as discussed in NUREG-1569 § 2.7, in that:

1. The DSEIS fails to analyze sufficiently the potential for and impacts associated with fluid migration associated with unplugged exploratory boreholes, including the adequacy of applicant's plans to mitigate possible borehole-related migration impacts by monitoring wellfields surrounding the boreholes and/or plugging the boreholes.
2. There was insufficient information for the NRC staff to make an informed fluid migration impact assessment given that the applicant's six monitor-well clusters and the 24-hour pump tests at four of these clusters provided

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<sup>14</sup>In various instances relative to this and the other three contentions that are the subject of Joint Intervenors' resubmittal motion, SEI makes the argument that the Staff's SER and/or one or more of SEI's post-hearing petition contention admission licensing review submissions to the Staff, whether in response to a Staff request for additional information (RAI) or otherwise, have the consequence of rendering the resubmitted contention moot or untimely under section 2.309(c)(1). *See* SEI Response at 9-10, 12-13, 15-16, 19-20. Expressing no view on whether it is possible for an SER to moot an environmental contention, to the degree this SEI argument is footed in NEPA-related RAIs, assertions of contention mootness or untimeliness based on such documents generally should be raised prior to the issuance of a Staff environmental document (like the DSEIS here). Such a timely filed motion would be based on the SER or applicant information having become available and having mooted or otherwise enervated the admitted environmental contention as it alleges an omission/analysis deficiency relative to the ER so as to require the filing of a new/amended contention that has not been properly proffered. In the absence of such a motion filed prior to the Staff environmental document, the Staff SER or such applicant information generally would become relevant as impacting an admitted environmental contention only to the degree the SER or applicant information is actually utilized as part of a subsequent Staff environmental document. Moreover, the timeliness of a new/amended contention motion relating to that information seemingly would be determined based on the availability of the Staff's environmental document, rather than the SER or the applicant's information, as the filing "trigger" for the motion.

insufficient hydrological information to demonstrate satisfactory groundwater control during planned high-yield industrial well operations.

Further, in making this designation, which moves this issue statement forward as an admitted post-DSEIS issue statement as set forth above and in Appendix A to this issuance, we note that we do not agree with Joint Intervenors' claim that this contention also encompasses the more general issue of whether the natural hydrological connections between area aquifers pose a risk of fluid migration. To be sure, Dr. Abitz in his second declaration seeks to formulate challenges to the DSEIS based on asserted data gaps in the conceptual and numerical hydrologic models in the SEI application and claims about the complex fluvial stratigraphy of the area. *See* Abitz Declaration at 18. As our contention admission decision's citations to the relevant portions of the declarations of Drs. Moran, Sass, and Abitz indicated, the supporting information we concluded provided the foundational support for an admissible contention relative to fluid migration impacts concerned boreholes and the results of SEI pumping tests. *See* LBP-12-3, 75 NRC at 199. At the same time, as we indicated in reviewing that contention's admissibility, we found insufficient to support this contention those portions of the declarations of Drs. Moran, Sass, and Abitz that sought to challenge the adequacy of the ER's analysis of site geology/seismology. *See id.* at 198. Dr. Abitz's data/modeling/stratigraphy concerns appear to be an attempt to revive these matters based on the DSEIS, which would require that they be proffered in the context of a new/amended contention supported by a showing that addresses the section 2.309(c) "good cause" and section 2.309(f)(1) admissibility requirements. Because Joint Intervenors have made no such showing, we need not give this more expansive claim further consideration in the context of this contention.

#### **4. Environmental Contention 4/5A: The DSEIS Fails to Adequately Assess Cumulative Impacts of the Proposed Action and the Planned Lance District Expansion Project**

CONTENTION: The DSEIS violates 10 C.F.R. §§ 51.70, 51.71 and NEPA, and the Council on Environmental Quality's (CEQ) implementing regulations for NEPA because it fails to consider adequately cumulative impacts, including impacts on water quantity, that may result from the proposed ISL uranium mining operations planned in the Lance District expansion project.

DISCUSSION: Joint Intervenors Motion at 15-18; SEI Response at 19-20; Staff Response at 22-25; Joint Intervenors Reply at 18-20.

RULING: We admitted this issue statement combining Joint Intervenors' environmental contentions 4 and 5A insofar as they claimed that the SEI ER lacked a sufficient analysis of the cumulative impacts associated with the potential

operation of several ISR facilities in the Lance District, of which the Ross facility site is but one portion. In doing so, the Board did not explicitly limit the scope of the cumulative impacts analysis at issue. But the Board did expressly denote groundwater quantity and quality as the matters for which adequate information had been submitted to support this contention's admission. *See* LBP-12-3, 75 NRC at 200, 203-04. In now seeking to "resubmit" this contention, from among the more than a dozen subject matter areas discussed in the Staff's DSEIS § 5 cumulative impacts analysis, *see* DSEIS at x-xi, Joint Intervenors, as well as Dr. Abitz as the supporting declarant, specifically reference only groundwater quantity and quality as the cumulative impact matters that continue to be inadequately analyzed. *See* Joint Intervenors Motion at 17-18; Abitz Declaration at 20-22. Consequently, in light of the Commission's direction to provide contention focus, *see supra* p. 138, if we were to find that this contention should pass through for further litigation via the migration tenet, we would limit its scope to groundwater quantity and quality cumulative impacts only.

As it turns out, however, we do not need to impose this limitation on this contention as "resubmitted" by Joint Intervenors because we conclude that the migration tenet is not applicable, given that the substantive basis of the cumulative impacts analysis asserted to be inadequate in the ER differs significantly from that provided in the DSEIS so that a new or amended contention would be required to frame an admissible contention. As we noted in our decision admitting this contention,

With respect to the scope of SEI's Lance District expansion, SEI states in its ER that it intends to construct and operate additional ISR facilities in the Lance District expansion surrounding the Ross site. *See* 1 [SEI, ER, Ross ISR Project [NRC] License Application, Crook County, Wyoming at 1-19 to -20, 2-23 (Dec. 2010) (ADAMS Accession No. ML110130342) [hereinafter ER]]. SEI indicates that these additional facilities would likely operate as satellites of the Ross facility and would utilize the same CPP that SEI proposes to construct for the Ross project. *See id.* at 2-23. And with respect to cumulative impacts, SEI states:

Absent any site-specific features that could preclude development of these other sites (e.g., historical and cultural resources), ISR operations at additional sites likely will result in essentially the same potential impacts analyzed in this ER for the Proposed Action. Development of these sites may act to produce cumulative effects by increasing or prolonging the impacts analyzed for the Proposed Action, but the impacts will be distributed proportionately throughout the region of influence and therefore are not expected to significantly increase the severity of any impact.

*Id.*

LBP-12-3, 75 NRC at 203. Joint Intervenors claimed then that, in light of

their own showing regarding this contention, SEI's reliance on this cumulative impacts discussion simply framed a "disagreement over the degree and quality of cumulative impact analysis required in [SEI]'s ER" that should be settled in litigating the merits of its contention, [Joint Intervenors'] Reply to Responses by [SEI] and the NRC Staff to Petition to Intervene and Request for Hearing (Dec. 15, 2011) at 27, a criticism they reiterate relative to the groundwater cumulative impacts analysis that is now in the Staff's DSEIS, *see* Joint Intervenors Reply at 19-20. But, as the Staff suggests, based as it is on an analysis of (1) anticipated groundwater quantity restoration in light of uranium recovery operations in the Lance District; and (2) post-Lance District ISR groundwater quality based on conditions asserted to have existed following restoration of the earlier Nubeth Joint Venture ISR exploratory project that operated within the Ross facility site during the 1970s and 1980s, *see* DSEIS at 5-22 to -27, the DSEIS discussion of the cumulative impacts of groundwater quantity and quality differs substantially from the SEI ER approach, a differentiation that is further evidenced by Joint Intervenors' attempt to challenge the propriety of the Staff's use of qualitative labeling — i.e., SMALL, MEDIUM, and LARGE — to characterize those impacts, *see* Joint Intervenors Motion at 17-18; Joint Intervenors Reply at 19-20.

As a consequence, the migration tenet is not applicable for this contention, so that a showing, even in the alternative,<sup>15</sup> regarding the section 2.309(f)(1) admissibility factors (as well as the section 2.309(c) "good cause" factors) was needed to provide the foundation for a new or amended contention contesting the adequacy of the Staff's DSEIS showing regarding cumulative groundwater quantity and quality impacts.

Because such a showing is lacking, this contention (as it is set forth in Appendix A to this decision) remains as originally admitted, *see* LBP-12-3, 75 NRC at 212, with its focus on the adequacy of the SEI ER. And in that regard, to what degree

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<sup>15</sup> As was noted above, *see supra* section II.A.3, an admitted ER-based environmental contention's sponsor is not required to "resubmit" or otherwise make a filing regarding such a contention following issuance of the Staff's environmental document if the contention properly is subject to the migration tenet. Nonetheless, if there is any question about whether that tenet is applicable, in the absence of a timely analysis of the section 2.309(c)(1) and (f)(1) new/amended contention precepts by the contention's sponsor, a board is not obligated to determine whether those new/amended contention requirements could have been met relative to the "migrated" environmental contention. *See Boston Edison Co.* (Pilgrim Nuclear Power Station), ALAB-816, 22 NRC 461, 465-68 (1985). Accordingly, a contention's sponsor may choose not to make any submission regarding an admitted ER-based environmental contention it believes properly will migrate and can simply await an applicant or Staff filing challenging the contention's continued viability in light of the Staff's environmental document. But if there is any question about whether an admitted contention merits a new/amended contention motion relative to the Staff's environmental document, the best approach seemingly would be to make a filing that treats the contention as if it were new/amended or, perhaps most prudently, argues in the alternative. In this instance, however, no argument was made regarding the applicability of the section 2.309(c)(1), (f)(1) new/amended contention standards to any of the resubmitted contentions.

this contention's pre-DSEIS concern regarding the ER can now be amended to center on the DSEIS, or, in the absence of such an amendment, remains relevant or material to the environmental portion of this proceeding so as to be a litigable post-DSEIS issue statement are matters that the parties may wish to address in the context of additional motions submitted in accord with the proceeding's existing general schedule or as otherwise might be appropriate in light of this ruling.

### C. Admissibility of Joint Intervenors' New Contention

Environmental Contention 6: NRC has failed to properly define the scope of the proposed major federal action here, which encompasses a much larger project in the same geographic area, as revealed in the DSEIS and in documents drafted by Strata's Australian parent company, Peninsula Energy, Ltd.

CONTENTION: The DSEIS violates 10 C.F.R. §§ 51.70 and 71, NEPA, and the Council on Environmental Quality's (CEQ) implementing regulations for NEPA because it fails to consider the environmental impacts of, and appropriate alternatives to, the applicant's actual proposed project, and instead improperly segments the project by framing the Proposed Action under review as only a small part of the Applicant's planned and scheduled In Situ Recovery (ISR) activities in the Lance District.

DISCUSSION: Joint Intervenors Motion at 18-23; SEI Response at 20-23; Staff Response at 25-27; Joint Intervenors Reply at 20-30.

RULING: *Inadmissible*, in that this contention and its foundational support (1) do not present a genuine dispute on a material issue of law or fact so as to warrant the admission of this contention; or (2) lack the requisite good cause as based on previously available information that was not submitted in a timely fashion given that information's previous availability. *See* 10 C.F.R. §§ 2.309(c)(1)(i), (iii), (f)(1)(vi).

In support of their new contention, Joint Intervenors primarily rely on NRC and Council on Environmental Quality (CEQ) regulations implementing NEPA along with the United States Supreme Court's decision in *Kleppe v. Sierra Club*, 427 U.S. 390 (1976). Specifically, Joint Intervenors highlight a CEQ regulatory provision, 40 C.F.R. § 1502.4(a), that provides agencies must "make sure the proposal which is the subject of an [EIS] is properly defined" and directs agencies to use the parameters laid out in 40 C.F.R. § 1508.25 when defining the scope of the EIS. Additionally, section 1502.4(a) states that "[p]roposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement." *Id.* Citing this regulation and *Kleppe*, which discusses the scope of an EIS in the context of regional coal-mining projects, Joint Intervenors argue that because the Ross site is just one part of a potentially larger ISR mining expanse, namely the Lance District,

in which other areas have been identified by SEI for future development and use, the larger district must be fully assessed within the DSEIS. Joint Intervenors thus assert that the DSEIS must be totally revamped and reissued as a comprehensive EIS that analyzes the Lance District in its entirety. *See* Joint Intervenors Motion at 19.

Relative to this new contention, the Board notes initially that within its fifty-page cumulative impacts section, the DSEIS considers the cumulative impacts of the Lance District and the other potential ISR sites therein.<sup>16</sup> *See* DSEIS at 5-1 to -51. The Staff thus has recognized, at least to some degree, the potential impacts of these other sites, in conjunction with the Ross site, if SEI applies for and receives NRC licenses and subsequently operates ISR facilities at these additional locations within the Lance District area. Moreover, the cumulative impacts associated with these sites is the subject of previously admitted environmental contention 4/5A, discussed in section II.B.4, above. Therefore, to the extent Joint Intervenors are concerned that the cumulative impacts of the other potential ISR mining areas within the Lance District have not been properly considered in this proceeding, this is an issue they already have placed before the Board, albeit, as we also noted in section II.B.4, above, at this point only in the context of a challenge to the SEI ER.

That being said, we also observe that to the degree Joint Intervenors focus on the nature of the “proposal” before the agency as supposedly providing a basis for admitting this new contention, the CEQ regulations and, more specifically, the *Kleppe* case are not necessarily supportive of their position here. In *Kleppe*, the Supreme Court explained that under NEPA § 102(2)(C), 42 U.S.C. § 4332(2)(C), which requires that an agency create an EIS, “the moment at which an agency must have a final statement ready ‘is the time at which it makes a recommendation or report on a *proposal* for federal action.’” *Kleppe*, 427 U.S. at 405-06 (quoting *Aberdeen & Rockfish R.R. Co. v. Students Challenging Regulatory Agency Procedures*, 422 U.S. 289, 320 (1975)). The Court then emphasized that an EIS should be issued to include other related actions only when those related actions have been formally proposed and are pending before the relevant agency, and noted that NEPA “does not require an agency to consider the possible environmental impacts of less imminent actions when preparing the impact statement on proposed actions.” *Id.* at 410 & n.20; *see id.* at 410 (“[W]hen several proposals for . . . actions that will have cumulative or synergistic environmental impact upon a region are *pending concurrently* before an agency, their environmental consequences must be considered together.” (emphasis added)). So too, in its *McGuire/Catawba* decision, the Commission recognized this precept concerning

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<sup>16</sup> The other sites are the Ross Amendment Area 1, which would expand the existing Ross site to the north and west, and the Kendrick, Richards, and Barber Satellite Amendment areas, which are located essentially in a contiguous line to the south of the Ross site. *See* DSEIS at 2-3 to -4, 5-3, 5-5.

the scope of the EIS regarding related actions by stating that “to bring NEPA into play, a possible future action must at least constitute a ‘proposal’ pending before the agency (i.e., ripeness), and must be in some way interrelated with the action that the agency is actively considering (i.e., nexus).” *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278, 295 (2002).

For their part, SEI and the Staff focus on the “ripeness” element of this analysis. In this regard, SEI argues that Joint Intervenors’ assertion that the Staff’s NEPA statement associated with the Ross site licensing process must encompass the entire Lance District “fails to account for the manner in which NRC regulates its licensees and evaluates proposed license/license amendment/license renewal applications.” SEI Response at 21. According to SEI, the applicant is required to propose a particular licensing action, which, in this instance, is the licensing of the Ross ISR site. That “proposal,” in turn, becomes the subject of the agency’s licensing review process, assuming it is within the agency’s regulatory jurisdiction, and so defines the scope of the licensing proceeding for the purpose of that process, including the agency’s NEPA review. Consequently, as SEI has applied for an NRC license for the Ross ISR site, that site must be the focus of the Staff’s NEPA analysis. *Id.* at 22-23.

SEI is correct that a licensing strategy whereby an applicant seeks initial ISR licensing authorization to mine a particular area on which a central processing plant (CPP) is located, followed thereafter by additional license amendments to cover ISR activities on contiguous or nearby areas, has been employed previously under the agency’s ISR facility licensing regime. See *Crow Butte Resources, Inc.* (Marsland Expansion Area), LBP-13-6, 77 NRC 253, 266, 267 (2013). Nonetheless, particularly in light of the Staff’s determination to analyze the cumulative impacts associated with the Lance District, the ability of an ISR facility applicant to proceed with its “proposal” in this manner as an administrative matter is hardly definitive in resolving the question raised by Joint Intervenors in positing environmental contention 6.

Instead, consistent with the “nexus” component of the Commission’s *McGuire/Catawba* analysis, with this contention Joint Intervenors assert that, regardless of its existing cumulative impacts analysis, the DSEIS, in the words of environmental contention 6, “improperly segments” the project so that the Staff fails to meet its NEPA obligation to prepare a comprehensive SEIS that encompasses all the individual ISR sites that SEI has indicated could be developed within the overall Lance District area. As their support for this improper segmentation claim, Joint Intervenors provide a declaration prepared by Christopher Paine, NRDC Senior Policy Advisor, wherein Mr. Paine principally discusses various press releases from SEI’s corporate parent, Peninsula Energy, Ltd. (PEL), that reference the Lance District and the company’s plans for its use. According to Joint Intervenors, these indicate that the Ross ISR site is merely one component of

the multipart, interconnected Lance District project, the entirety of which is slated for ISR development. *See* Joint Intervenors Motion at 19-20; Paine Declaration at unnumbered pp. 14-28.

In assessing this improper segmentation claim as it seeks to provide the grounds for a litigable contention, we look to 40 C.F.R. § 1508.25(a), the CEQ regulation that outlines the scope or range of actions that should be considered in an EIS and which NRC's Part 51 regulations recognize should be used in implementing NEPA § 102(2), *see* 10 C.F.R. § 51.14(b). Under section 1508.25(a), three types of actions are to be considered in looking to the scope of an EIS: connected, cumulative, and similar. Further, to determine whether actions are "connected" such that they "should" be discussed in the same EIS, section 1508.25(a)(1) indicates that an agency is to consider whether the actions (1) "automatically trigger" other actions that may require an EIS; (2) "[c]annot or will not proceed unless other actions are taken previously or simultaneously"; or (3) "[a]re interdependent parts of a larger action and depend on the larger action for their justification." 40 C.F.R. § 1508.25(a)(1)(i)-(iii). "Cumulative" actions, on the other hand, are those that, "when viewed with other proposed actions[,] have cumulatively significant impacts" so that they "should" be discussed in the same EIS. *Id.* § 1508.25(a)(2). And finally "similar" actions are those that, "when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental impacts together, such as common timing or geography," so that the agency "may wish to analyze them together." *Id.* § 1508.25(a)(3).

With respect to whether the Ross ISR site and the other Lance District ISR sites are "connected" proposals per section 1508.25(a)(1), in this instance the relevant criterion appears to be whether, in accord with paragraph (iii), the requisite "interdependence" exists among the various actions at issue. *See* Joint Intervenors Motion at 22. And in making this determination, courts generally have looked to see whether the first action (in this instance, the Ross ISR facility) has "independent utility." *Thomas v. Peterson*, 753 F.2d 754, 759 (9th Cir. 1985); *see also McGuire/Catawba*, CLI-02-14, 55 NRC at 297 ("[W]hen developing an EIS, an agency must consider the impact of other proposed projects 'only if the projects are so interdependent that it would be unwise or irrational to complete one without the other.'" (quoting *Webb v. Gorsuch*, 699 F.2d 157, 161 (4th Cir. 1983))). Moreover, in seeking to demonstrate such interdependence between the Ross ISR site and the potential development of the other ISR sites in the Lance District to the degree necessary to obtain the admission of environmental contention 6, Joint Intervenors have offered various indicia of support.

One is their statement, made without any referenced support, that "the [CPP] to be developed under the 'Ross Project' may not even constitute an economically viable investment without the revenue assumptions based on exploiting these additional 'production units.'" *Id.* at 20. While recognizing that a board may

appropriately view a petitioner's supporting information in a light favorable to the petitioner, *see Arizona Public Service Co.* (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), CLI-91-12, 34 NRC 143, 155 (1991), it is also the case that neither mere speculation nor bare or conclusory assertions, even by an expert, will suffice to allow the admission of a proffered contention, *see Fansteel, Inc.* (Muscowee, Oklahoma Site), CLI-03-13, 58 NRC 195, 203 (2003). Given that Joint Intervenors have provided nothing concrete to support the central premise of this statement that the Ross CPP "may" not be economically viable without licensing/operating the other proposed ISR facilities in the Lance District, we find this assertion to be wholly inadequate to support the admission of this contention.

Another is Joint Intervenors' reference to the fact that, as the DSEIS and, indeed, the ER acknowledge, *see* DSEIS at 2-13; 1 ER at 1-4, the CPP for the Ross facility is planned to have "four times the capacity justified by proven reserves" on the Ross ISR site, thereby allowing loaded ion exchange resins from the other potential Lance District ISR sites to be brought to the Ross facility for processing. Joint Intervenors Reply at 26. But denoting aspects of the Ross facility licensing proposal that will permit economic and operational efficiency if SEI successfully carries out its apparent plan to have other Lance District ISR sites licensed is not the same as showing that the Ross ISR facility itself lacks any "independent utility" such that its licensing and operation would not go forward absent the licensing and operation of the other Lance District ISR sites.

Also provided as support are numerous references to the fact that SEI's apparent strategy will be to move forward in the near term with licensing the other ISR projects within the Lance District. *See* Joint Intervenors Motion at 21; Joint Intervenors Reply at 26 n.20. Joint Intervenors highlight in this regard a PEL press release statement indicating that employing a stratagem whereby, once the Ross ISR site is licensed, the contiguous Lance District ISR sites will be licensed via amendments to the Ross license is a strategy that "'will significantly reduce the permitting process and timing.'" Joint Intervenors Motion at 20 (quoting Press Release, PEL Definitive Feasibility and Expanded Economic Studies Confirm the Viability of the Lance ISR Projects (Dec. 21, 2011), <http://www.pel.net.au/images/penninsul---singaefehu.pdf>). In addition, within Mr. Paine's supporting declaration are various statements suggesting that the apparent SEI plan eventually to license all the potential ISR sites in the Lance District is "economically-driven," including his reference to a November 2012 PEL press release stating that the schedule under which the Staff provided SEI with a draft license for the Ross facility is consistent with the "'project economics'" and evidences the fact that the planned expansion "is highly likely to occur." Paine Declaration at unnumbered pp. 24-25 (emphasis in original) (quoting Press Release, PEL, Peninsula Receives Draft Source Material License (Nov. 8, 2012), <http://www.pel.net.au/images/penninsul---aimohgaeto.pdf>). While these assertions all support the premise that there is a strong likelihood that PET/SEI intend that

eventually all the Lance District ISR sites will be licensed and operating, they are not the same as showing, as would be pertinent to the question of whether the Ross ISR facility is a “connected” action as defined in section 1508.25(a)(1), that the Ross facility lacks any independent utility in the absence of the completion of the other Lance District ISR sites.

Consequently, as to whether the “connected” action aspect of section 1508.25(a)(1) supports this improper segmentation contention’s admissibility, because Joint Intervenors have failed to meet the contention admissibility requirement of 10 C.F.R. § 2.309(f)(1)(vi) by not providing sufficient supporting information to show that a genuine dispute exists on the material issue of whether the Ross ISR facility is an interdependent part of the larger Lance District project, we cannot admit their improper segmentation contention on that basis.

As to the “cumulative” and “similar” elements of the section 1508.25(a) scoping analysis, of which only the latter is even mentioned by Joint Intervenors, albeit without elaboration, *see* Joint Intervenors Motion at 19, to whatever degree they might be a more fruitful source of support for this contention so as to meet the section 2.309(f)(1) admissibility criteria,<sup>17</sup> they nonetheless face a significant barrier under section 2.309(c)(1)(i), (iii), to the degree those criteria require that the information supporting the new contention was not previously available and that the contention was timely submitted based on the availability of the “not previously available” supporting information. Putting aside whether Joint Intervenors may have been justified in failing previously to lodge a new segmentation contention based on the interdependence of the Ross ISR site and other Lance District ISR sites as “connected” actions, from the information provided in the SEI ER regarding the other potential Lance District ISR sites, *see* 1 ER at 2-8 to -9, 2-14, 2-23, as well as the information in the various PEL press releases dating back to October 2010 that are cited by Mr. Paine in his declaration accompanying Joint Intervenors’ June 2013 motion,<sup>18</sup> it is clear that by the time

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<sup>17</sup>For instance, the fact that the Staff previously supported the need for a cumulative impacts analysis, *see* LBP-12-3, 75 NRC at 200, 203, which it now has provided in the DSEIS regarding the other Lance District ISR sites, at least suggests that, consistent with section 1508.25(a)(2), there are “cumulative actions” that might need full NEPA consideration in the same impact statement. Further, while the courts have recognized that the permissive “may” language of section 1508.25(a)(3) affords an agency more discretion in making a choice about whether a single EIS is the “best way” to assess “similar” actions, *Klamath-Siskiyou Wildlands Center v. Bureau of Land Management*, 387 F.3d 989, 1001 (9th Cir. 2004), the geographic proximity of the Ross ISR site to the other Lance District ISR sites and the apparent timing of the future licensing actions for these other ISR sites vis-à-vis the Ross ISR site seemingly would be relevant in determining whether they are “similar” actions under that provision so as to merit consideration in a single impact statement.

<sup>18</sup>We note that Joint Intervenors, indicating they discovered the various PEL press releases in preparing to comment on the truncated scope of the Staff’s DSEIS, maintain that, given the SEI  
(Continued)

of the filing of their October 2011 hearing petition or perhaps shortly thereafter, Joint Intervenors could have sought to raise the question of whether, in accord with section 1508.25(a)(2)-(3), the Ross ISR site and the other Lance District ISR sites did constitute “cumulative” or “similar” actions such that a single SEIS addressing all potential Lance District ISR sites was appropriate. Having failed to do so at that time, we are unable to conclude that, under the section 2.309(c)(1)(i), (iii) criteria, good cause exists for their current motion seeking to interpose such a new segmentation issue now.

In sum, relative to NEPA and the relevant CEQ regulations and case law interpreting that environmental enactment so as to require that a comprehensive EIS be issued when actions are “connected,” Joint Intervenors have failed to present a showing supporting environmental contention 6 sufficient to create a genuine dispute about the material issue of whether the Ross ISR facility and the other potential ISR facilities in the Lance District are interdependent such that a comprehensive SEIS encompassing the Lance District is now required in the context of licensing the Ross ISR facility. *See* 10 C.F.R. § 2.309(f)(1)(vi). Further, on the question of whether the Ross ISR facility licensing proceeding and the potential licensing of the other Lance District ISR sites are “cumulative” or “similar” actions under the applicable CEQ guidance and associated case law so as to mandate a single SEIS now, Joint Intervenors likewise have failed to show that, under the standards in section 2.309(c)(1)(i), (iii), good cause exists for their post-hearing petition environmental contention 6. Thus, having failed to meet either the contention admissibility standards set forth in 10 C.F.R. § 2.309(f)(1) or the “good cause” provision of section 2.309(c)(1), this contention must be rejected.<sup>19</sup>

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and Staff “shell game” of asserting that the Ross ISR facility and the other Lance District ISR sites are entirely separate for NEPA purposes, they had no reason to seek such information until it was too late to challenge the project’s scope. Joint Intervenors Reply at 22. Given that SEI disclosed in its application that PEL was its parent, *see* 1 ER at 1-7, and, as we referenced above, provided information outlining its intent to develop multiple ISR sites within the Lance District, we fail to see how Joint Intervenors then lacked the basic ingredients needed to seek the foundational information required to frame and adequately support a segmentation contention in the context of challenging the SEI ER, which clearly did not provide the breadth of information Joint Intervenors now assert needs to be compiled to generate a comprehensive SEIS encompassing the entire Lance District.

<sup>19</sup> Although SEI holds out the promise that “interested stakeholders will have ample opportunity to file challenges to . . . potential future project sites if and when [SEI] submits a license amendment application to the NRC for its review,” SEI Response at 23 (footnote omitted), given the apparent Staff practice relative to such amendments of attempting to fulfill its NEPA responsibilities in the context of an environmental assessment rather than an SEIS, *see* Licensing Board Order (Initial Prehearing Conference and Scheduling Order), *Crow Butte Resources, Inc.* (Marsland Expansion Area), Docket No. 40-8943-MLA-2 (June 14, 2013), at 5 n.3 (unpublished), the degree to which the types of impacts Joint Intervenors are concerned about here will, in the first instance, be the subject of future consideration remains to be seen.

### **III. CONCLUSION**

In considering Joint Intervenors' May 6, 2013 request that "resubmitted" versions of their four already-admitted NEPA-related contentions referencing the Staff's DSEIS be accepted for further litigation in this proceeding, based on the application of the "migration" tenet applicable to environmental contentions that are footed in an applicant's ER, the Board (1) approves Joint Intervenors' request as to environmental contentions 1, 2, and 3, as set forth in Appendix A to this decision; and (2) denies their request as to environmental contention 4/5A, thereby leaving intact the previously admitted contention (also set forth in Appendix A) as it references the applicant's ER. Further, finding that new environmental contention 6 also proffered with Joint Intervenors' May 6 submission fails to meet either the "good cause" or admissibility requirements of 10 C.F.R. § 2.309(c)(1)(i), (iii), (f)(1)(vi), we deny Joint Intervenors' request to admit that new contention for litigation in this proceeding.

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For the foregoing reasons, it is this 26th day of July 2013, ORDERED that:

1. As Joint Intervenors' May 6, 2013 motion seeks to resubmit Environmental Contentions 1, 2, and 3, the motion is *granted* in that those three contentions, as set forth in Appendix A to this issuance, are accepted for further litigation.
2. As Joint Intervenors' May 6, 2013 motion seeks to resubmit Environmental Contention 4/5A, the motion is *denied*.
3. As Joint Intervenors' May 6, 2013 motion seeks the admission of new Environmental Contention 6, the motion is *denied*.

THE ATOMIC SAFETY AND  
LICENSING BOARD

G. Paul Bollwerk, III, Chairman  
ADMINISTRATIVE JUDGE

Richard F. Cole  
ADMINISTRATIVE JUDGE

Kenneth L. Mossman  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
July 26, 2013

## **APPENDIX A** **CONTENTIONS**

1. Environmental Contention 1: The DSEIS fails to adequately characterize baseline (i.e., original or pre-mining) groundwater quality.

**CONTENTION:** The DSEIS fails to comply with 10 C.F.R. §§ 51.70 and 71, 10 C.F.R. Part 40, Appendix A, and NEPA because it lacks an adequate description of the present baseline (i.e., original or pre-mining) groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner, using proper sampling methodologies. The DSEIS's departure from NRC guidance serves as additional evidence of these regulatory violations. NRC, NUREG-1569, Standard Review Plan for In Situ Leach Uranium Extraction License Applications, §§ 2.7.1, 2.7.3, 2.7.4 (2003).

2. Environmental Contention 2: The DSEIS fails to analyze the environmental impacts that will occur if the applicant cannot restore groundwater to primary or secondary limits.

**CONTENTION:** The DSEIS fails to meet the requirements of 10 C.F.R. §§ 51.70, 51.71 and NEPA because it fails to evaluate the virtual certainty that the applicant will be unable to restore groundwater to primary or secondary limits in that the DSEIS does not provide and evaluate information regarding the reasonable range of hazardous constituent concentration values that are likely to be applicable if the applicant is required to implement an Alternative Concentration Limit (ACL) in accordance with 10 C.F.R. Part 40, App. A, Criterion 5B(5)(c).

3. Environmental Contention 3: The DSEIS fails to include adequate hydrological information to demonstrate SEI's ability to contain groundwater fluid migration.

**CONTENTION:** The DSEIS fails to assess adequately the likelihood and impacts of fluid migration to the adjacent groundwater, as required by NEPA, and as discussed in NUREG-1569 § 2.7, in that:

1. The DSEIS fails to analyze sufficiently the potential for and impacts associated with fluid migration associated with unplugged exploratory boreholes, including the adequacy of applicant's plans to mitigate possible borehole-related migration impacts by monitoring wellfields surrounding the boreholes and/or plugging the boreholes.
2. There was insufficient information for the NRC staff to make an informed fluid migration impact assessment given that the applicant's six monitor-well clusters and the 24-hour pump tests at four of these clusters provided insufficient hydrological information to demonstrate satisfactory groundwater control during planned high-yield industrial well operations.

4. Environmental Contention 4/5A: The application fails to adequately assess cumulative impacts of the proposed action and the planned Lance District expansion project.

**CONTENTION:** The application violates 10 C.F.R. § 51.45, NEPA, and the Council on Environmental Quality's (CEQ) implementing regulations for NEPA because it fails to consider adequately cumulative impacts, including impacts on water quantity, that may result from SEI's proposed ISL uranium mining operations planned in the Lance District expansion project.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Allison M. Macfarlane**, Chairman  
**Kristine L. Svinicki**  
**George Apostolakis**  
**William D. Magwood, IV**  
**William C. Ostendorff**

In the Matter of

Docket No. 40-7102-MLA

**SHIELDALLOY METALLURGICAL  
CORPORATION**  
**(Decommissioning of the Newfield,  
New Jersey Site)**

August 5, 2013

**LICENSE TERMINATION: RESTRICTED VERSUS  
UNRESTRICTED RELEASE**

Nothing in our license termination regulations, including the ALARA principle incorporated into section 20.1403(a), calls for a comparison of doses of the restricted-release and unrestricted-release decommissioning options. The doses yielded by the restricted-release and unrestricted-release decommissioning options are not susceptible to being compared meaningfully because of the significantly different risks and uncertainties associated with each option.

**LICENSE TERMINATION: RESTRICTED VERSUS  
UNRESTRICTED RELEASE**

Due to the inherent complexities and uncertainties associated with restricted release, our preference is for unrestricted-release decommissioning. In light of our preference for unrestricted release, we incorporated into section 20.1403(a) a threshold eligibility provision for restricted release that requires licensees to demonstrate that remediation to the level of adequate protection for license

termination cannot be achieved cost-beneficially through unrestricted release before allowing them to pursue restricted-release decommissioning.

**LICENSE TERMINATION: SECTION 20.1403(a)**

The eligibility test in section 20.1403(a) postulates a cost-benefit inquiry that, in its technical approach, is modeled on a traditional ALARA cost-benefit analysis (i.e., a comparison of the potential costs and benefits of incremental reductions in radioactivity levels below a particular radiation level), but that, in this context, serves a different regulatory purpose. The ALARA analysis required under section 20.1403(a) calls for a licensee seeking to use restricted release to analyze whether it would be cost-beneficial to remove enough radioactive contamination from the site so that doses to the public are no higher than 25 mrem per year without reliance on restricted-release controls.

**LICENSE TERMINATION: SECTION 20.1403(a)**

The words “further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402” are the subject of the central inquiry mandated by section 20.1403(a). That inquiry focuses on a specific activity — making the “further reductions in residual radioactivity” that would be necessary to decommission a site pursuant to an unrestricted-release plan — and requires the licensee to demonstrate why those reductions “were not being made.”

**LICENSE TERMINATION: SECTION 20.1403(a)**

The phrase “reductions in residual radioactivity” in section 20.1403(a) refers only to dose reductions to the public that can be accomplished solely through the steps associated with unrestricted-release decommissioning — i.e., removal of contaminated material or decontamination.

**LICENSE TERMINATION: SECTION 20.1403(a)**

The first sentence of section 20.1403(a) requires licensees seeking restricted release to examine why “*further* reductions in residual radioactivity . . . were not being made” (emphasis added). “Further reductions” necessarily refers to further reductions from the level of residual radioactivity that a licensee proposes to leave in place under its proposed restricted-release decommissioning plan.

**LICENSE TERMINATION: SECTION 20.1403(a)**

A licensee seeking to demonstrate eligibility to pursue restricted release must show that further reductions — to a dose level of 25 mrem — of the levels of residual radioactivity proposed to be left in place under a restricted-release plan either “[1] would result in net public or environmental harm or [2] were not being made because the residual levels associated with restricted conditions are ALARA.” This means that a licensee is required to demonstrate — through either a “net harm” analysis, or an analysis that considers the costs and benefits examined under a traditional “ALARA” analysis — that further reducing proposed residual radioactivity to unrestricted-release levels would not be cost-beneficial.

**LICENSE TERMINATION: SECTION 20.1403(a)**

The determination expressly required by the text of section 20.1403(a) — whether “further reductions in residual radioactivity . . . were not being made because the residual levels . . . are ALARA” — is an inquiry that, by definition, focuses on how far it is possible, on a cost-effective basis, to further reduce the “residual levels” and thereby reduce the dose to the public solely by taking the actions necessary to accomplish unrestricted release (i.e., removing or decontaminating radioactive materials).

**LICENSE TERMINATION: SECTION 20.1403(a)**

Construed in context with the entire introductory clause in section 20.1403(a), the inquiry whether “residual levels associated with restricted conditions are ALARA” calls for a licensee to demonstrate that “further reductions” (that is, further removal of contaminated soil or decontamination) from *proposed* residual radioactivity levels to the level necessary to achieve unrestricted release are “not being made” because the proposed “residual levels” are *already* as low as is reasonably achievable, such that “further” removal or decontamination would not be cost-beneficial.

**LICENSE TERMINATION: SECTION 20.1403(a)**

Licensees pursuing restricted release must reduce residual radioactivity levels as low as is reasonably (i.e., cost-beneficially) achievable through removal and decontamination *before* relying on engineered barriers and institutional controls to reduce doses to the public to regulatory compliance levels.

### **LICENSE TERMINATION: SECTION 20.1403(a)**

Even if unrestricted release cannot be achieved cost-effectively, requiring that a licensee reduce residual radioactivity to the lowest cost-effective level under a restricted-release plan serves the beneficial regulatory purpose of optimizing protection of public health and safety and is consistent with our preference for unrestricted release.

### **LICENSE TERMINATION: SECTION 20.1403(a)**

To reasonably calculate the benefits of unrestricted release, the licensee must account for the costs of restricted release that the licensee will avoid through unrestricted release. But, such a limited comparison, necessary for the cost-benefit analysis of reducing residual radioactivity to a qualifying level for unrestricted release, does not constitute a comparison between the doses to the public under restricted and unrestricted release.

## **MEMORANDUM AND ORDER**

The matter before us today originally arose from our 2009 transfer of regulatory authority over specified categories of nuclear material to the State of New Jersey under section 274 of the Atomic Energy Act (AEA).<sup>1</sup> Section 274 authorizes the Commission to enter into an agreement with the governor of any state if we find that the state's regulatory program is "adequate" to protect the public health and safety with respect to the materials the state seeks to regulate and is "compatible" with our program for regulation of such materials.

Prior to the 2009 transfer, Shieldalloy Metallurgical Corporation (Shieldalloy) had been pursuing license termination with respect to a source material license associated with the company's metal alloy manufacturing site in Newfield, New Jersey. Shieldalloy challenged the 2009 transfer to New Jersey in the United States Court of Appeals for the District of Columbia Circuit. In 2010, that court unanimously vacated the 2009 transfer as to the Shieldalloy site and transferred regulatory authority back to the NRC.<sup>2</sup> On remand from the D.C. Circuit's 2010 decision, we addressed the issues identified by the court and reinstated transfer of our regulatory authority over the site to New Jersey.<sup>3</sup> In 2011, Shieldalloy filed a second appeal in the D.C. Circuit. This time, the court voted two to one

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<sup>1</sup> Atomic Energy Act of 1954, as amended, § 274, 42 U.S.C. § 2021.

<sup>2</sup> *Shieldalloy Metallurgical Corp. v. NRC*, 624 F.3d 489 (D.C. Cir. 2010).

<sup>3</sup> CLI-11-12, 74 NRC 460 (2011).

to vacate the transfer once again and to remand the case to the NRC for further proceedings.<sup>4</sup>

The three-judge panel unanimously deferred to the NRC on two issues: (1) that section 274 of the AEA does not permit the NRC to retain jurisdiction over a site at a licensee's request where the state seeks to assume regulatory authority over the site and meets section 274's "adequacy" and "compatibility" criteria;<sup>5</sup> and (2) that the NRC's agreement-state "Criterion 25," which requires appropriate arrangements to ensure that transfer of NRC's regulatory authority does not interfere with or interrupt the licensing process, did not compel the NRC to retain jurisdiction over the Shieldalloy site.<sup>6</sup> But the court, with one judge dissenting, found in favor of Shieldalloy and vacated the transfer to New Jersey based on an issue involving our interpretation of our license termination regulations. The court held that, in finding New Jersey's license termination regulations to be "adequate" and "compatible" with our regulations, we had failed to explain how our interpretation of one particular provision — 10 C.F.R. § 20.1403(a) — was grounded in the regulatory text.

The purpose of our decision today is to provide a textual analysis and additional clarifying explanation of our interpretation of section 20.1403(a) in light of the court's remand. This analysis supports the conclusion we reached in CLI-11-12 — that there is no incompatibility between New Jersey's license termination regulations and ours. Contrary to Shieldalloy's position, New Jersey's standards for license termination are not less protective of public safety than are the NRC's. Indeed, the NRC mandates that, upon license termination, the annual radiation dose to the public be limited to 25 mrem, while New Jersey requires that it be reduced even further, to 15 mrem.<sup>7</sup> And, as a means of ensuring long-term compliance with these requirements and maintaining adequate protection of the public health and safety, both the NRC and New Jersey have taken steps to limit the use of restricted-release decommissioning. In our case, we have implemented by regulation a preference for unrestricted-release decommissioning. While the

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<sup>4</sup> *Shieldalloy Metallurgical Corp. v. NRC*, 707 F.3d 371 (D.C. Cir. 2013).

<sup>5</sup> *Id.* at 376.

<sup>6</sup> *Id.* at 377.

<sup>7</sup> As stated in our regulation relating to unrestricted use, "[a] site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a TEDE [Total Effective Dose Equivalent] to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater sources of drinking water, and that the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA)." 10 C.F.R. § 20.1402. For license termination under restricted conditions, the related criterion is that "[t]he licensee has made provisions for legally enforceable institutional controls that provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 25 mrem (0.25 mSv) per year." 10 C.F.R. § 20.1403(b).

court did not raise issues with the technical and policy reasons we have supplied for our preference, the court believed that the text of our regulations and guidance documents suggest that we have *no* favored option as between restricted and unrestricted release and require the selection of the decommissioning option that yields the lowest dose achievable. This order provides additional explanation to clarify that section 20.1403(a) is consistent with (and, in fact, codifies) our preference that licensees satisfy our radiation dose criteria for license termination through unrestricted-release decommissioning if it is cost-beneficial to do so. In light of this explanation, we reinstate the transfer of our regulatory authority over Shieldalloy's site to New Jersey.

## **I. THE NRC'S INTERPRETATION OF ITS LICENSE TERMINATION REGULATIONS**

Before engaging in a textual analysis of section 20.1403(a), we set forth the regulatory interpretation that was the subject of the court's remand decision. In reviewing our (and Shieldalloy's) construction of our regulations, we refer to our earlier remand order, CLI-11-12, and various characterizations of our position reflected in the court's majority and dissenting opinions.<sup>8</sup>

In the first remand proceeding, we understood Shieldalloy to assert that our license termination regulations require a licensee to compare radiation doses resulting from restricted-release and unrestricted-release decommissioning options and to choose the option that yields the lowest achievable dose.<sup>9</sup> Shieldalloy claimed that New Jersey's license termination program was incompatible with, and less protective of, the public health and safety than the NRC's because New Jersey had not adopted such a "comparative-dose" requirement. Before us, Shieldalloy did not cite section 20.1403(a) as the basis for its claim that our license termination regulations embody a comparative-dose requirement, referring only to our general ALARA principle. Given that New Jersey had in fact adopted the general ALARA requirement for all of its radiation protection programs,

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<sup>8</sup>The procedural history and regulatory background relevant to this case are detailed in our earlier order on remand. That order discusses the regulatory framework regarding our agreement state policy, our license termination rule, and our general regulatory principle known as "ALARA" (as low as is reasonably achievable), which requires licensees engaged in all regulatory activities, including license termination, to reduce radiation dose levels as far below regulatory dose limits as is cost-beneficial. *See* CLI-11-12, 74 NRC at 464-67, 478-83.

<sup>9</sup>CLI-11-12, 74 NRC at 488-89.

including license termination,<sup>10</sup> we surmised that section 20.1403(a),<sup>11</sup> which uses the term “ALARA” and which New Jersey did not adopt, may have been the source of Shieldalloy’s comparative-dose claim.<sup>12</sup>

Despite Shieldalloy’s limited explanation of its comparative-dose argument, we addressed its explanation in our remand decision and concluded that Shieldalloy had misconstrued our license termination regulations, including the role of an ALARA analysis in § 20.1403(a). Accordingly, we explained that regulation’s basic “purpose and method.”<sup>13</sup> We made clear that nothing in our license termination regulations, including the ALARA principle incorporated into section 20.1403(a), “call[s] for a comparison of doses of restricted-release and unrestricted-release decommissioning options.”<sup>14</sup> The doses yielded by the restricted-release and unrestricted-release decommissioning options, we explained, are “not susceptible to being compared meaningfully”<sup>15</sup> because of the “significantly different risks and uncertainties associated with” each option.<sup>16</sup> We emphasized, however, that due to the inherent complexities and uncertainties associated with restricted release, including reliance on engineered barriers and long-term monitoring over a 1000-year compliance period, our preference, made explicit when we adopted the license termination rule, was for unrestricted-release decommissioning.<sup>17</sup> In

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<sup>10</sup> *Id.* at 492-93.

<sup>11</sup> Section 20.1403(a) provides in relevant part:

A site will be considered acceptable for license termination under restricted conditions if:

(a) The licensee can demonstrate that further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402 [governing unrestricted release] would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA. Determination of the levels which are ALARA must take into account consideration of any detriments, such as traffic accidents, expected to potentially result from decontamination and waste disposal[.]

<sup>12</sup> Our understanding of Shieldalloy’s argument during the first remand comports with the D.C. Circuit’s subsequent characterization of Shieldalloy’s position on appeal:

[I]f we understand Shieldalloy correctly, the proper application of the emphasized language [in § 20.1403(a)] would entail a comparison between restricted and unrestricted release, and the former would win when it yielded lower risks than unrestricted [release]. By contrast, Shieldalloy asserts, New Jersey does not contemplate any form of radiation dose comparison between restricted and unrestricted release, and may require unrestricted release even where restricted release would have been safer.

*Shieldalloy*, 707 F.3d at 378.

<sup>13</sup> See *id.* at 394 (Rogers, J., concurring in part and dissenting in part).

<sup>14</sup> CLI-11-12, 74 NRC at 491.

<sup>15</sup> *Id.* at 489.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.* at 491. This principle is reflected in the Statements of Consideration accompanying our license termination rule, in which we explained that decommissioning under an unrestricted-release plan is

(Continued)

light of our preference for unrestricted release, we incorporated into our license termination regulations a threshold eligibility provision for restricted release that requires licensees to demonstrate that remediation to the level of adequate protection for license termination<sup>18</sup> cannot be achieved cost-beneficially through unrestricted release before allowing them to pursue restricted-release decommissioning.<sup>19</sup>

This initial eligibility requirement is contained in section 20.1403(a). As we explained in our order on remand, the eligibility test in section 20.1403(a) postulates a cost-benefit inquiry that, in its technical approach, is modeled on a traditional ALARA cost-benefit analysis (i.e., a comparison of the potential costs and benefits of incremental reductions in radioactivity levels below a particular radiation level), but that, in this context, serves a different regulatory purpose.<sup>20</sup> Whereas the traditional purpose of an ALARA analysis (which is made applicable by section 20.1101(b) to all licensed activities<sup>21</sup>) is to reduce doses below a specified regulatory dose limit if cost-effective,<sup>22</sup> the ALARA principle incorporated into section 20.1403(a) serves as a regulatory tool to “limit the use of restricted release — effectively, to screen out sites that should be removing contamination to achieve unrestricted use.”<sup>23</sup> Accordingly, the ALARA analysis required under section 20.1403(a) calls for a licensee seeking to use restricted release to analyze whether it would be cost-beneficial to remove enough radioactive contamination from the site so that doses to the public are no higher than 25 mrem per year without reliance on restricted-release controls. The results of a section 20.1403(a) analysis will determine the licensee’s initial eligibility to pursue restricted release.

As we indicated, section 20.1403(a) permits a licensee to weigh the costs and benefits of removing radioactive contamination using one of two alternative analyses modeled on the ALARA principle. The licensee may perform an analysis that either (1) compares all of the potential benefits to all of the potential costs that are typically evaluated in an ALARA analysis for its traditional purpose; or (2)

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“generally preferable” because “it requires no additional precautions or limitations on use of the site after licensing control ceases.” Final Rule: “Radiological Criteria for License Termination,” 62 Fed. Reg. 39,058, 39,069 (July 21, 1997).

<sup>18</sup>To provide adequate protection to the public upon license termination, we have established a maximum dose level to the public of 25 mrem per year. A licensee must satisfy this limitation without regard to cost, and regardless of whether decommissioning is to be accomplished through restricted or unrestricted release. CLI-11-12, 74 NRC at 480-81; *see* 10 C.F.R. §§ 20.1402, 20.1403(b).

<sup>19</sup> CLI-11-12, 74 NRC at 492; *see also* *Shieldalloy*, 707 F.3d at 392 (Rogers, J., concurring in part and dissenting in part).

<sup>20</sup> CLI-11-12, 74 NRC at 480-81, 491-92.

<sup>21</sup> *Id.* at 480.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.* at 491-92.

considers the “net public and environmental harm” as a cost and compares those costs against the health- and environment-related benefits of removing radioactive contamination.<sup>24</sup> If under either test removing radioactive contamination to a level at or below the 25-mrem-per-year threshold would not be cost-beneficial, the licensee will be eligible to pursue restricted release.<sup>25</sup>

We further noted that the requirement that a licensee reduce radiation doses associated with restricted release to regulatory limits — or below regulatory limits if cost-effective (i.e., ALARA for its traditional purpose) — is the subject of separate regulatory provisions that come into play *after* a licensee demonstrates initial eligibility to pursue restricted release as required under section 20.1403(a). As we explained, if a licensee demonstrates, through either of the two cost-benefit approaches incorporated into section 20.1403(a), that removing radioactive contamination to the unrestricted-use level would not be cost-beneficial, the licensee then must show that, with the addition of engineered barriers and institutional controls, the average annual dose to the public will not exceed 25 mrem per year *and* is as low as is reasonably achievable.<sup>26</sup> Also, the licensee must show that, in the event institutional controls fail, enough residual radioactivity has been removed from the site so that the average annual dose to the public will not exceed 100 mrem per year and is as low as is reasonably achievable.<sup>27</sup> We made clear that, despite having passed the initial eligibility test, “[i]f the licensee cannot satisfy those criteria, its site will not ‘be considered acceptable for license termination under restricted conditions.’”<sup>28</sup> In that event, the site must be remediated to the

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<sup>24</sup> *Id.* at 481; *Shieldalloy*, 707 F.3d at 392 (Rogers, J., concurring in part and dissenting in part). In a full-fledged ALARA analysis, the potential “costs” of removing contamination to achieve unrestricted release include transportation-related doses to workers and the public, occupational doses, and occupational nonradiological risks such as traffic accidents, as well as the out-of-pocket costs of removing soil to reach the 25-mrem-per-year unrestricted-use level and transporting and disposing of the soil at a low-level radioactive waste facility. *See NUREG-1757*, Vol. 2 at N-3. The potential “benefits” of removing contamination to the unrestricted-release level include collective dose averted, regulatory costs avoided, changes in land values, esthetics, and reduction in public opposition. *Id.* Most of the potential benefits and costs (including occupational and transportation-related doses and transportation risks) are converted to a dollar value. *Id.* at N-3 to N-9. The “net public or environmental harm” analysis compares the health and environment-related benefits of reduction in residual radioactivity to a subset of potential costs and excludes consideration of the out-of-pocket costs of soil removal, transportation, and disposal. *See NUREG-1757*, Vol. 1, at 17-70; *id.*, Vol. 2, at N-13 to N-14.

<sup>25</sup> CLI-11-12, 74 NRC at 481.

<sup>26</sup> *Id.*; 10 C.F.R. § 20.1403(b).

<sup>27</sup> CLI-11-12, 74 NRC at 481-82; 10 C.F.R. § 20.1403(e). A 500-mrem-per-year dose criterion is also available under limited circumstances. *Id.*

<sup>28</sup> CLI-11-12, 74 NRC at 482 (quoting 10 C.F.R. § 20.1403); *see also Shieldalloy*, 707 F.3d at 393 (Rogers, J., concurring in part and dissenting in part).

level of adequate protection for license termination using unrestricted release pursuant to section 20.1402.<sup>29</sup>

In light of our interpretation of section 20.1403(a) and our rejection of Shieldalloy's assertion that the provision contains a comparative-dose requirement, we concluded that New Jersey's omission of a provision analogous to section 20.1403(a) is "immaterial to adequacy or compatibility."<sup>30</sup> As we explained, we have assigned license termination a "Category C" classification, which means that states are free to adopt criteria in this area that are more restrictive than ours.<sup>31</sup> Because New Jersey, like the Commission, has adopted the objective of seeking "to *limit* the use of restricted release," and because New Jersey has, in fact, adopted "more stringent criteria for license termination under restricted release than for unrestricted release, as well as more conservative criteria than ours," we deemed New Jersey's regulations to be compatible with our program under our agreement-state policy.<sup>32</sup>

## II. THE COURT'S REMAND

In its recent decision, the D.C. Circuit found that the text of section 20.1403(a) neither "precludes" Shieldalloy's reading of the provision to compel selection of the lowest-dose reasonably achievable decommissioning option "nor, at least without exegesis that is completely missing here," supports our contention that the provision was intended to compel selection of unrestricted release if cost-beneficial.<sup>33</sup> Examining the phrase "were not being made because the residual levels associated with restricted conditions are ALARA" in the text of section 20.1403(a), the court suggested that "the availability of restricted release under § 20.1403 would appear to have nothing to do with whether unrestricted release can be attained in a cost-beneficial manner, and everything to do with some property of restricted release."<sup>34</sup> The court acknowledged that this construction of section 20.1403(a) "jars with" the NRC's stated preference for unrestricted

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<sup>29</sup> CLI-11-12, 74 NRC at 481-82; *see note 17, supra*.

<sup>30</sup> CLI-11-12, 74 NRC at 493.

<sup>31</sup> *Id.* at 479, 482, 493, 496. The compatibility classification for license termination was adopted at the time the license termination rule was promulgated, after being subject to public comment at the proposed rule stage. *See id.* at 482.

<sup>32</sup> *Id.* at 493 (emphasis in original); *see also* N.J. Admin. Code §§ 7.28-6.1, 12.8, 12.9, 12.10, 12.11, and 12.12.

<sup>33</sup> *Shieldalloy*, 707 F.3d at 379.

<sup>34</sup> *Id.*

release<sup>35</sup> and is “in tension” with the second sentence of the provision.<sup>36</sup> But the court nevertheless concluded that the language at issue seemed to require a showing regarding restricted release that is unrelated to whether unrestricted release would be cost-beneficial.<sup>37</sup> The court also observed that other “NRC regulations and statements,” including the definition of ALARA in section 20.1003, certain statements in NUREG-1757 (our license termination guidance),<sup>38</sup> and Staff requests for information from Shieldalloy, did not appear to “square” with the NRC’s position that section 20.1403(a) employs the ALARA principle as part of a threshold assessment of eligibility to pursue restricted release.<sup>39</sup>

Although it found our explanation lacking, the court did not necessarily endorse Shieldalloy’s comparative-dose position. Instead, it required us to explain, based on the text of § 20.1403(a), how New Jersey’s regulations are compatible with ours:

In the present case, our study of the text led to the conclusion that the Commission’s response to Shieldalloy lacked an apparent textual basis; but that finding of course does not obligate the NRC to accept *Shieldalloy*’s interpretation of § 20.1403(a). Rather, it requires only that the Commission explain itself in a way that rationally addresses the concerns we set out above.<sup>40</sup>

Accordingly, the court granted Shieldalloy’s petition challenging the NRC’s transfer of NRC’s authority to New Jersey, vacated the transfer of authority as to Shieldalloy’s site, and remanded the case for proceedings consistent with its opinion.<sup>41</sup> In the discussion below, we endeavor to address the court’s concerns.

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<sup>35</sup> *Id.* at 380.

<sup>36</sup> The second sentence of section 20.1403(a) provides that the “[d]etermination of the levels which are ALARA must take into account consideration of any detriments, such as traffic accidents, expected to potentially result from decontamination and waste disposal.” The court observed that, in contrast to unrestricted release, “traffic accidents related to waste disposal would seem to have little to do with restricted release, which involves on-site disposal of radioactive materials.” *Shieldalloy*, 707 F.3d at 380.

<sup>37</sup> *Shieldalloy*, 707 F.3d at 379-80.

<sup>38</sup> Consolidated Decommissioning Guidance: Decommissioning Process for Materials Licensees, NUREG-1757, Vol. 1 (Rev. 2, Sept. 2006); Consolidated Decommissioning Guidance: Characterization, Survey and Determination of Radiological Criteria, NUREG-1757, Vol. 2 (Rev. 1, Sept. 2006).

<sup>39</sup> *Shieldalloy*, 707 F.3d at 380.

<sup>40</sup> *Id.* at 382.

<sup>41</sup> *Id.* at 383.

### **III. DISCUSSION**

As explained above, Shieldalloy contends that New Jersey’s regulations are not compatible with ours because New Jersey lacks a comparable regulation to section 20.1403(a), which in Shieldalloy’s view requires a comparison between doses to the public under restricted release and unrestricted release and selection of the alternative that yields the lowest dose. On remand, the D.C. Circuit asked us to provide the textual basis for our interpretation of section 20.1403.<sup>42</sup> As shown below, the pivotal inquiry in section 20.1403(a) is whether it is cost-beneficial to reduce residual radioactivity to or below the level of unrestricted release, not whether unrestricted release leads to a higher or lower public dose than restricted release.

#### **A. Textual Analysis of Section 20.1403(a)**

We begin by examining the words “further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402”<sup>43</sup> as these words are the subject of the central inquiry mandated by section 20.1403(a). That inquiry focuses on a specific activity — making the “further reductions in residual radioactivity” that would be necessary to decommission a site pursuant to an unrestricted-release plan — and, in relevant part here, requires the licensee to demonstrate why those reductions “were not being made.”<sup>44</sup> An accurate understanding of what “further reductions in residual radioactivity” means and does not mean is critical to understanding the demonstration of initial eligibility for restricted release required by section 20.1403(a).

“Residual radioactivity” is defined in our regulations — “radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee’s control.”<sup>45</sup> While it is possible to use restricted-release decommissioning to reduce the *dose* to the public from “residual radioactivity” — i.e., by creating institutional controls to restrict future land use and in some cases constructing engineered barriers to reduce exposure to radioactivity — it is not possible to *reduce* “residual radioactivity” itself simply by taking these steps. Instead, “residual radioactivity,” as defined, can only be “reduced” through removal of radioactive material from a site or site decontamination. Accordingly,

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<sup>42</sup> *Id.* at 382.

<sup>43</sup> The provisions of 10 C.F.R. § 20.1402 govern unrestricted release.

<sup>44</sup> See 10 C.F.R. § 20.1403(a) (“A site will be considered acceptable for license termination under restricted conditions if . . . the licensee can demonstrate that further reductions in residual radioactivity necessary to comply with [the radiological criteria for unrestricted use] . . . were not being made because the residual levels associated with restricted conditions are ALARA . . .”).

<sup>45</sup> 10 C.F.R. § 20.1003.

our use of the phrase “reductions in residual radioactivity” in section 20.1403(a) refers only to dose reductions to the public that can be accomplished solely through the steps associated with unrestricted-release decommissioning — i.e., removal of contaminated material or decontamination.

The first sentence of section 20.1403(a) requires licensees seeking restricted release to examine why “*further* reductions in residual radioactivity . . . were not being made” (emphasis added). Our use of the term “further” in connection with the phrase “reductions in residual radioactivity necessary to comply with the provisions of § 20.1402” is significant. Given that the provision applies solely to licensees seeking authorization to use restricted release, “further reductions” necessarily refers to further reductions from the level of residual radioactivity that a licensee proposes to leave in place under its proposed restricted-release decommissioning plan. Depending on a licensee’s proposal, what is proposed to be left in place could consist of residual radioactivity from contaminated material existing at a site when a restricted-release application is filed, or, if the licensee proposes to remove (or decontaminate) some of the existing contaminated material, the residual radioactivity that would remain after removal (or decontamination).

As for the particular demonstration required, the first sentence of section 20.1403(a) ties the language, “further reductions in residual radioactivity necessary to [accomplish unrestricted release],” to two alternative showings. Specifically, a licensee seeking to demonstrate eligibility to pursue restricted release must show that further reductions — to a dose level of 25 mrem — of the levels of residual radioactivity proposed to be left in place under a restricted-release plan either “[1] would result in net public or environmental harm or [2] were not being made because the residual levels associated with restricted conditions are ALARA.” This sentence in its entirety requires a licensee to demonstrate through either method that further reducing proposed residual radioactivity to unrestricted-release levels, without considering the impacts of institutional controls and engineered barriers associated with restricted release, would not be cost-beneficial.

The language in section 20.1403(a) upon which the court focused — “were not being made because the residual levels associated with restricted conditions are ALARA”<sup>46</sup> — describes the alternative of using a full cost-benefit analysis to examine whether further reductions in proposed residual radioactivity, to the level of unrestricted release, would not be cost-beneficial. The court did not appear to take issue with the “net harm” analysis as a cost-benefit screening mechanism for sites that should be decommissioning to unrestricted release. The court did take

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<sup>46</sup>This is the same language that Shieldalloy relied on in briefing before the D.C. Circuit to support its comparative-dose position. *See Shieldalloy*, 707 F.3d at 386 (Rogers, J., concurring in part and dissenting in part).

issue with our explanation as to how the portion of the regulation referring to an ALARA analysis was related to “whether unrestricted release can be attained in a cost-beneficial manner.”<sup>47</sup> It appears that the court’s concern stems from the words “residual levels associated with restricted conditions,” and, in particular, its understanding that these words speak to “some property of restricted release.”<sup>48</sup>

The central “property” of restricted release that distinguishes it from unrestricted release, however, is the reliance on engineered barriers and institutional controls to reduce doses to the public to regulatory compliance levels and to maintain doses at those levels. By contrast, unrestricted release involves removal or decontamination of material to achieve and maintain doses at regulatory compliance levels without relying on the controls inherent in a restricted-use plan. As we have explained above, “residual radioactivity,” as defined, can only be “reduced” through removal or decontamination and not through the engineered barriers and institutional controls that would come into play under a restricted-release plan. Considering its placement in the first sentence of section 20.1403(a), the term “residual levels,” as used in the phrase “were not being made because the residual levels . . . are ALARA,” refers back to, and is shorthand for, the term “residual radioactivity” used earlier in the introductory language.<sup>49</sup> Accordingly, the determination expressly required by the text of section 20.1403(a) — whether “further reductions in residual radioactivity . . . were not being made because the residual levels associated with restricted conditions are ALARA” — is an inquiry that, by definition, focuses on how far it is possible, on a cost-effective basis, to further reduce the “residual levels.” Consequently, the inquiry necessarily focuses on the actions required to accomplish unrestricted release (i.e., removing or decontaminating radioactive materials).<sup>50</sup> This means that the “residual levels . . . are ALARA” inquiry has nothing whatever to do with accomplishing or assessing dose reductions using restricted release or comparing restricted-release and unrestricted-release dose. Rather, given the link to the introductory clause — “further reductions in residual radioactivity necessary to comply with . . . § 20.1402” — this inquiry has everything to do with assessing whether “further

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<sup>47</sup> *Id.* at 380.

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

<sup>49</sup> This is the only permissible construction of the term, given that there is no other term in the regulation that is modified by the word “residual.” *Accord NUREG-1757*, Vol. 1 at 17-70 (calling for the licensee to demonstrate that the reason that further reductions were not being made is because the “residual radioactivity levels are ALARA”).

<sup>50</sup> This interpretation is consistent with our license termination guidance, which describes the “residual radioactivity level that is ALARA” to mean the “concentration . . . at which the benefit from removal equals the cost of removal.” *NUREG-1757*, Vol. 2, at N-10.

radioactive materials can be cost-beneficially removed, washed away, or the like so that the site can be decommissioned under [unrestricted release].”<sup>51</sup>

Our construction is supported by the second sentence of section 20.1403(a), which instructs licensees, in determining whether “levels . . . are ALARA,” to consider “detriments, such as traffic accidents.” Traffic accidents, as the court’s opinion itself acknowledged,<sup>52</sup> would generally only be relevant to activities necessary to accomplish unrestricted release (e.g., removal and transportation of contaminated material away from the site and to a place of disposal). The construction also comports with section 20.1403(e), which, due to our concern that institutional controls might fail, requires that, notwithstanding a licensee’s plan to rely upon restricted release, the licensee still must make certain efforts to reduce the amount of residual radioactivity. These passages confirm the fundamental lesson to be gleaned from section 20.1403(a)’s focus on reductions in residual radioactivity — that, by definition, taking steps to reduce residual radioactivity involves activities that are separate from the introduction of restricted-release controls and, instead, involves activities that can only be associated with unrestricted release.

To be sure, the language “associated with restricted conditions” might, at first glance, appear to focus on some defining property of restricted release, such as the dose that could be cost-beneficially achieved under a licensee’s restricted-release plan. However, the placement and use of those words within the sentence at issue (i.e., in connection with the inquiry as to why “further reductions in residual radioactivity . . . were not being made”) undermines that reading. These words necessarily refer to the residual levels of radioactivity that a licensee proposes to leave in place as part of its proposed restricted-release plan.<sup>53</sup> Construed in context with the entire introductory clause in section 20.1403(a), the inquiry whether “residual levels associated with restricted conditions are ALARA” calls for a licensee to demonstrate that “further reductions” (that is, further removal of contaminated soil or decontamination) from *proposed* residual radioactivity levels to the level necessary to achieve unrestricted release are “not being made” because the proposed “residual levels” are *already* as low as is reasonably achievable, such that “further” removal or decontamination would not be cost-beneficial. Thus the phrase “associated with restricted conditions” does not suggest a comparison between restricted and unrestricted release.

As this analysis makes clear, licensees pursuing restricted release must reduce residual radioactivity levels as low as is reasonably (i.e., cost-beneficially) achiev-

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<sup>51</sup> *Shieldalloy*, 707 F.3d at 392 (Rogers, J., concurring in part and dissenting in part).

<sup>52</sup> *Id.* at 380 (majority opinion).

<sup>53</sup> This is consistent with our license termination guidance, which describes the test at issue in section 20.1403(a) as requiring a “demonstration that the *proposed* residual radioactivity levels at the site are ALARA.” See NUREG-1757, Vol. 1, at 17-70 (emphasis added).

able through removal and decontamination *before* relying on engineered barriers and institutional controls to reduce doses to the public to regulatory compliance levels. If the licensee's proposed level of residual radioactivity is as low as is cost-beneficially achievable but still exceeds the level required for unrestricted release (25 mrem), the licensee will have demonstrated that it is not possible to further reduce residual radioactivity to a point where unrestricted release is cost-beneficial and will be eligible to pursue restricted release. Conversely, if analysis reveals that the proposed residual radioactivity level is not as low as is cost-beneficially achievable and that further reductions to 25 mrem or below would be cost-beneficial, the licensee will not be eligible for restricted release and must decommission to unrestricted-release criteria. This would be true even if it were possible to cost-beneficially reduce the dose to the public to infinitesimally small levels through restricted release, as Shieldalloy claims to be able to do in this case.<sup>54</sup>

Our regulatory preference for unrestricted release requires that the licensee meet the 25-mrem dose requirement by removing or decontaminating radioactive material if it is cost-effective to do so. We observe, however, that even if unrestricted release cannot be achieved cost-effectively, requiring that a licensee reduce residual radioactivity to the lowest cost-effective level under a restricted-release plan serves the beneficial regulatory purpose of optimizing protection of public health and safety and is consistent with our preference for unrestricted release. In particular, reducing residual radioactivity from preexisting levels to the lowest level that can be accomplished cost-beneficially facilitates greater protection of public health and safety in the event engineered barriers and institutional controls fail over the long term,<sup>55</sup> and may also result in the need for fewer and less complex engineered barriers and institutional controls, substantially lessening the risk of failure of such barriers and controls over the 1000-year compliance period.

In sum, the above analysis of the text of section 20.1403(a), informed by the regulatory definition of residual radioactivity in section 20.1003, clarifies that the provision does not entail any comparison between the individual annual doses associated with restricted release and the individual annual doses associated with unrestricted release. Rather, as a matter of initial eligibility for consideration of restricted release, section 20.1403(a) requires licensees seeking to pursue restricted release to demonstrate through a cost-benefit analysis that reduction of residual radioactivity to 25 mrem or below would not be cost-beneficial. If, and

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<sup>54</sup> CLI-11-12, 74 NRC at 490.

<sup>55</sup> See § 20.1403(e) (requiring a demonstration, for those licensees eligible to pursue restricted release, that “[r]esidual radioactivity at the site has been reduced” so that if institutional controls fail, the dose to the public will be as low as reasonably achievable and will not exceed 100 mrem or 500 mrem under some circumstances).

only if, such reductions cannot be made on a cost-beneficial basis by using the tools associated with unrestricted release — most notably, removing contaminated material — will the licensee be eligible to pursue restricted release.

### B. Response to the Court's Other Concerns

Beyond calling for a textual analysis of section 20.1403(a), the court also indicated that guidance published by the Commission, namely NUREG-1757, “evinces a clear expectation that a licensee must compare unrestricted and restricted release in order to establish eligibility” for restricted release under section 20.1403(a). The court further observed that NUREG-1757 “can reasonably be read to call for precisely the kind of comparative dose analysis that Shieldalloy claims is contemplated by” that section.<sup>56</sup> The “comparisons” associated with an ALARA cost-benefit analysis, however, do not require the comparative dose analysis that Shieldalloy postulates.

As described above, to establish eligibility for restricted release, a licensee must demonstrate that residual levels of radioactivity cannot cost-beneficially be reduced to the unrestricted-release level. Such a determination, by definition, requires an identification and, if possible, a reduction to a dollar value, of the costs and benefits of reducing residual radioactivity levels at or below this level. The most obvious examples of the costs and benefits of such an effort are the cost of performing the work (i.e., the cost of removal, transport, and disposal), and the benefits to the public of reducing the dose by a particular amount. The financial value of these costs and benefits can be calculated solely with reference to the activity involved. Thus, there is a cost to remove a particular amount of contaminated soil, measured as a function of the amount of waste and the cost of waste disposal per unit volume.<sup>57</sup> Likewise, there is a value to the public in reducing the dose to which it might be exposed. This benefit is referred to as “collective dose averted” and is a function of the reduction in individual dose, the number of people affected by the reduction, and the length of time people are affected.<sup>58</sup>

Other components of the ALARA cost-benefit analysis cannot be calculated without reference to a proposed alternative. These components necessitate the references to “comparisons between restricted and unrestricted release” in our

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<sup>56</sup> *Shieldalloy*, 707 F.3d at 381 (citing NUREG-1757, Vol. 2, at 6-3, N-6).

<sup>57</sup> See NUREG-1757, Vol. 2, at N-7.

<sup>58</sup> *Id.* at N-4 (“An acceptable value for a collective dose is \$2000 per person-rem averted, discounted for a dose averted in the future.”).

guidance,<sup>59</sup> which the court cited.<sup>60</sup> Indeed, the benefits of reducing the levels of residual radioactivity include not only a benefit that is calculated in *absolute* terms, i.e., collective dose averted, but also benefits associated with avoiding restricted release that can only be calculated in *relative* terms, such as regulatory costs avoided, changes in land values, and reductions in public opposition. The benefits associated with, for example, regulatory costs avoided, that will result from unrestricted release can only be measured by comparing (1) the regulatory costs if the site were decommissioned pursuant to an unrestricted-release plan with (2) the regulatory costs if the site were released pursuant to a restricted-release plan. In the latter case, the licensee would be required to make expenditures on items such as additional licensing fees to develop an environmental impact statement, additional financial assurance, costs associated with public meetings, and future liability.<sup>61</sup> In other words, one of the benefits of reducing residual levels of radioactivity to levels that do not exceed 25 mrem is the avoidance of costs that would otherwise be incurred were the licensee to pursue restricted release.

The same is true of other benefits that inform the ALARA analysis. For example, the benefits associated with changes in land value can only be measured by comparing the value of the land before the contemplated remediation activity is completed against the value of the land after the activity is completed. Where the remediation activity brings residual levels of radioactivity to or below the 25-mrem threshold (and the licensee is therefore eligible to pursue unrestricted release), the licensee is likely to derive substantial pecuniary benefit. The value of the land will increase if it is free from the need to maintain institutional controls and the landowner has the ability to use the land without restriction. Thus, one of the benefits of removing enough radioactivity to cross the 25-mrem threshold is that the value of the affected property is likely to increase, and this increase must be part of the ALARA analysis, which seeks to accurately compare the costs with the benefits of reducing residual radioactivity to a qualifying level for unrestricted release. It is in this sense (and in this sense only) that our guidelines contemplate, as part of the ALARA analysis required by section 20.1403(a), a comparison between restricted release and unrestricted release. Thus, to reasonably calculate the benefits of unrestricted release, the licensee must account for the costs of restricted release that the licensee will avoid through unrestricted release. But, such a limited comparison, necessary for the cost-benefit analysis of reducing residual radioactivity to a qualifying level for unrestricted release, does not constitute the comparison between the doses to the public under restricted and unrestricted release postulated by Shieldalloy.

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<sup>59</sup> *Id.* at 6-3; *see also id.* at N-6 (referring to “ALARA analyses of restricted release versus unrestricted release decommissioning goals”).

<sup>60</sup> *Shieldalloy*, 707 F.3d at 381.

<sup>61</sup> *See* NUREG-1757, Vol. 2, at N-6.

As analysis of these benefits demonstrates, reducing residual radioactivity levels from a point above 25 mrem to a point at or below that threshold results in several benefits that would not be realized (or would be realized to a much lesser extent) if the remediation only were able to reduce the residual levels to a point that remained above 25 mrem (for example, from 80 mrem to 30 mrem). The fact that additional benefits can be achieved by crossing the 25-mrem threshold explains the observation in our guidance that “[i]n most comparisons between alternatives in the same class<sup>62</sup> . . . the only important benefit should be collective dose averted.”<sup>63</sup> Stated differently, reducing residual radioactivity from 80 mrem to 20 mrem results not only in the absolute benefit of collective dose averted, but also results in the relative benefit of no longer having to maintain institutional controls. By contrast, reducing residual radioactivity from 80 mrem to 30 mrem has value in terms of the collective dose averted, but it is unlikely to result in avoided regulatory costs or to produce a substantial difference in land value because the reductions at issue do not reduce the level below the 25-mrem dose threshold and, consequently, are not likely to change the regulatory environment.

Finally, and relatedly, the court expressed concern that a request for additional information sent by the NRC Staff to Shieldalloy<sup>64</sup> suggests the need for a comparative dose analysis between restricted and unrestricted release. Specifically, the court cited the Staff’s statement that “overestimating the cost of unrestricted release ‘would bias the net harm or ALARA comparison away from the unrestricted use option.’”<sup>65</sup> This statement in the RAI suggests no comparative dose analysis between restricted and unrestricted release. Instead, the statement merely reflects a fundamental truth about weighing the costs and benefits of any proposed action. Increasing the amount of work performed to a point beyond that which is necessary to achieve a desired result may result in a finding that the action under consideration is not cost-beneficial. Here, the Staff simply requested that Shieldalloy consider the cost of removing only those materials that would be required to reduce the residual radioactivity levels so as not to exceed 25 mrem

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<sup>62</sup> “[A]lternatives in the same class” refers to situations in which both alternatives result in restricted release or both alternatives result in unrestricted release.

<sup>63</sup> NUREG-1757, Vol. 2, at 6-3.

<sup>64</sup> Request for Additional Information for Safety Review of Proposed Decommissioning Plan for Shieldalloy Metallurgical Corporation (License No. SMB-743) (July 5, 2007) (RAI) at 21 (“The licensee has not demonstrated that complete removal and offsite disposal is necessary to achieve the unrestricted use criteria. If the amount of remediation work is overestimated, then the cost of the [license termination] alternative would also be overestimated, which would bias the net harm or ALARA comparison away from the unrestricted use option. Thus, the unrestricted use option considered should be an option with minimal incremental remedial actions to achieve the unrestricted use criteria.”).

<sup>65</sup> *Shieldalloy*, 707 F.3d at 381.

per year.<sup>66</sup> Because Shieldalloy's calculations may have overstated the amount of work needed to pursue unrestricted release, the Staff observed that such an overstatement could erroneously suggest eligibility for restricted release. Of principal concern here, none of these statements implies that the relevant inquiry under section 20.1403(a) is a comparative dose analysis between restricted and unrestricted release. Rather, these statements support the Commission's consistently stated position that the relevant inquiry under section 20.1403(a) is a comparison of the costs and benefits of reducing residual radioactivity to a qualifying level for unrestricted release.

### C. Adequacy and Compatibility of New Jersey's Program

Today, we have provided the textual analysis that the court found lacking when we concluded in our first remand order that New Jersey's license termination regulations were adequate and compatible with our regulations. We also have explained why our regulatory guidance and our communications with Shieldalloy do not contradict and are entirely consistent with the regulatory interpretation that we have provided. Shieldalloy's claim that New Jersey's license termination regulations are inadequate and incompatible with ours is grounded in its understanding of the regulation at issue — section 20.1403(a). That understanding contemplates that section 20.1403(a) requires a comparative dose analysis between restricted-and unrestricted-release decommissioning, whereas New Jersey's regulations do not. Our analysis today, however, confirms that Shieldalloy postulates a distinction between our regulations and New Jersey's regulations that simply does not exist. Nothing in section 20.1403(a), or in any of our other regulations relevant to license termination, calls for a comparison between unrestricted-release and restricted-release doses (or selection of the lower dose as between restricted release and unrestricted release). Instead, as we have explained here, the language of section 20.1403(a), which focuses on "further reductions to residual radioactivity," a concept necessarily linked to unrestricted release, supports our reading of the regulation to essentially require a cost-benefit analysis of the measures needed to achieve unrestricted release. This embodies our preference for unrestricted release, a preference that is reflected in New Jersey's regulations without an initial eligibility provision such as section 20.1403(a).<sup>67</sup> Accordingly, we reaffirm our finding that New Jersey's regulatory program is adequate and compatible with our program within the meaning of AEA § 274.<sup>68</sup>

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<sup>66</sup> RAI at 21.

<sup>67</sup> See CLI-11-12, 74 NRC at 492-93, 495-96.

<sup>68</sup> Because we only provide the textual analysis specifically requested by the court, we need not  
(Continued)

#### **IV. CONCLUSION**

For the foregoing reasons, we *reinstate* New Jersey's authority to regulate Shieldalloy's Newfield, New Jersey site.

**IT IS SO ORDERED.**

For the Commission

**ROCHELLE C. BAVOL**  
Acting Secretary of the Commission

Dated at Rockville, Maryland,  
this 5th day of August 2013.

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and do not address what consequences would follow if Shieldalloy's characterization of our license termination rule were accurate.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Paul S. Ryerson**, Chairman  
**Dr. Michael F. Kennedy**  
**Nicholas G. Trikouras**

**In the Matter of**

**Docket No. 50-346-LA  
(ASLBP No. 13-928-02-LA-BD01)**

**FIRSTENERGY NUCLEAR  
OPERATING COMPANY  
(Davis-Besse Nuclear Power  
Station, Unit 1)**

**August 12, 2013**

In this Memorandum and Order, the Atomic Safety and Licensing Board (Board) determines that petitioners failed to submit an admissible contention in accordance with 10 C.F.R. § 2.309(f)(1), denies their petition to intervene for this reason, and terminates the proceeding before the Board.

**REGULATIONS: INTERPRETATION (10 C.F.R. §§ 50.59, 2.206)**

“A member of the public may challenge an action taken under 10 C.F.R. § 50.59 only by means of a petition under 10 C.F.R. § 2.206,” which must be submitted to the Executive Director for Operations for consideration by the appropriate office director. *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-94-3, 39 NRC 95, 101 n.7 (1994).

**REGULATIONS: INTERPRETATION (10 C.F.R. § 50.59)****LICENSING BOARD(S): JURISDICTION**

A challenge to an applicant's analysis pursuant to 10 C.F.R. § 50.59 is not the proper subject of an adjudicatory hearing before a licensing board.

**MEMORANDUM AND ORDER  
(Denying Petition for Intervention and Request for Hearing)**

Before the Board is a petition<sup>1</sup> submitted in response to a notice of an opportunity for a public hearing regarding a license amendment request by FirstEnergy Nuclear Operating Co. (FirstEnergy).<sup>2</sup> FirstEnergy's request seeks to revise four technical specifications for the Davis-Besse Nuclear Power Station, Unit 1 (Davis-Besse), located in Ottawa County, Ohio.<sup>3</sup>

Because petitioners have failed to submit an admissible contention in accordance with 10 C.F.R. § 2.309(f)(1), we deny their petition.

**I. BACKGROUND**

On January 18, 2013, FirstEnergy requested a license amendment, pursuant to 10 C.F.R. §§ 50.90-50.92, to revise four Davis-Besse technical specifications to support plant operations following the planned installation of replacement steam generators in April 2014.<sup>4</sup> The revisions to the technical specifications, FirstEnergy asserts, would impose requirements that reflect the physical design characteristics and dimensions of the replacement steam generators.<sup>5</sup> Separately, the actual replacement of the steam generators is currently being analyzed by FirstEnergy, without prior NRC review, pursuant to 10 C.F.R. § 50.59.<sup>6</sup> FirstEn-

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<sup>1</sup> Petition to Intervene and for an Adjudicatory Public Hearing of [FirstEnergy Nuclear Operating Company] FENOC License Amendment Request (May 20, 2013) [Petition].

<sup>2</sup> 78 Fed. Reg. 16,883 (Mar. 19, 2013).

<sup>3</sup> See Letter from Raymond A. Lieb, Vice President, Nuclear, FirstEnergy, to Document Control Desk, NRC, License Amendment Request for Proposal Revision of Technical Specification (TS) 3.4.17, "Steam Generator (SG) Tube Integrity"; TS 3.7.18, "Steam Generator Level"; TS 5.5.8, "Steam Generator (SG) Program"; and TS 5.6.6, "Steam Generator Tube Inspection Report" (Jan. 18, 2013) (ADAMS Accession No. ML13018A350) [License Amendment Request (LAR)].

<sup>4</sup> 78 Fed. Reg. at 16,883.

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

<sup>6</sup> Section 50.59(c) sets forth the circumstances under which a licensee may or may not make changes in a facility without obtaining a license amendment (a process that requires prior NRC review and approval).

ergy asserts that its section 50.59 analysis is ongoing and will not necessarily require a license amendment.<sup>7</sup>

In response to the NRC's notice of an opportunity for a hearing on FirstEnergy's license amendment request regarding the Davis-Besse technical specifications, four organizations — Beyond Nuclear, Citizens Environmental Alliance of Southwestern Ontario, Don't Waste Michigan, and the Ohio Sierra Club (collectively Joint Petitioners) — petitioned for a hearing and asked to intervene.<sup>8</sup> Both the NRC Staff and FirstEnergy oppose, each contending that Joint Petitioners have neither demonstrated standing nor proffered an admissible contention.<sup>9</sup>

## II. ANALYSIS

To intervene as a party in an adjudicatory proceeding concerning a proposed license action, a petitioner must (1) establish it has standing; and (2) proffer at least one admissible contention.<sup>10</sup> We first address the admissibility of Joint Petitioners' one proffered contention, and need go no further.

### A. Contention

Joint Petitioners' proffered contention states:

Significant changes to the Replacement Once Through Steam Generator (ROTSG) modification project and to the reactor containment structures, all planned by FirstEnergy Nuclear Operating Company to be made to the Davis-Besse Nuclear Power Station, require that the steam generator replacement project be deemed an "experiment" according to 10 C.F.R. § 50.59, and that an adjudicatory public hearing be convened for independent analysis of the project, before it is implemented. Moreover, FENOC has applied after the fact for a technical specifications license

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<sup>7</sup>LAR at 2.

<sup>8</sup>Petition at 1.

<sup>9</sup>See NRC Staff Answer to the Beyond Nuclear, Citizens Environment Alliance of Southwestern Ontario, Don't Waste Michigan, and Ohio Sierra Club Joint Request for a Hearing and Petition for Leave to Intervene (June 14, 2013) [NRC Staff's Answer]; [FirstEnergy's] Answer Opposing Petition to Intervene and Request for Hearing Regarding Technical Specification License Amendment Request (June 14, 2013) [FirstEnergy's Answer]. Joint Petitioners subsequently submitted a reply (*see* Petitioners' Reply in Support of "Petition to Intervene and for an Adjudicatory Public Hearing of FENOC License Amendment Request" (June 21, 2013) [Reply]), which both the NRC Staff and FirstEnergy have moved to strike in part. *See* NRC Staff Motion to Strike Portions of Joint Petitioners Reply or, in the Alternative, for Leave to Reply (July 1, 2013) [NRC Staff's Motion to Strike]; [FirstEnergy's] Motion to Strike Portions of Petitioners' Reply (June 28, 2013) [FirstEnergy's Motion to Strike]. The Board heard oral argument by telephone on July 24, 2013.

<sup>10</sup>10 C.F.R. § 2.309(a).

amendment, which comprises an additional, automatic, trigger under 10 CFR § 50.59 and necessitates adjudication of the license amendment request.<sup>11</sup>

The contention is not admissible for two fundamental reasons.

*First*, in substance<sup>12</sup> and by its terms, the contention plainly challenges FirstEnergy's analysis of its proposed steam generator replacement under 10 C.F.R. § 50.59. Such a challenge is not cognizable in this proceeding. As the Commission has stated, “[a] member of the public may challenge an action taken under 10 C.F.R. § 50.59 only by means of a petition under 10 C.F.R. § 2.206.”<sup>13</sup> Such a petition must be submitted to the Executive Director for Operations for consideration by the appropriate office director.<sup>14</sup> Therefore, a challenge to FirstEnergy's analysis under 10 C.F.R. § 50.59 of its proposed steam generator replacement is not the proper subject of an adjudicatory hearing, much less a hearing in a proceeding that concerns only a request to amend FirstEnergy's license to modify four technical specifications.

The planned steam generator replacement project at Davis-Besse involves the physical changes to the plant that are required to remove the original steam generators and to install their replacements. It also involves the need to revise four technical specifications to support operation with the new steam generators. FirstEnergy is currently analyzing the physical changes under 10 C.F.R. § 50.59 and hopes to be able to accomplish these without obtaining a license amendment under 10 C.F.R. § 50.90.<sup>15</sup> In contrast, the revisions to the Davis-Besse technical specifications that are necessary to allow Davis-Besse to operate safely with the replacement steam generators after they have been installed do require a license amendment,<sup>16</sup> and are the subject of the license amendment request that gave rise to the hearing notice in this proceeding. It is those proposed changes to the technical specifications — and not the actual physical replacement of steam generators and associated section 50.59 analysis — that are potentially subject to a hearing before this Board.

To be sure, separating consideration of four proposed changes in technical specifications from other aspects of FirstEnergy's section 50.59 analysis does raise

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<sup>11</sup> Petition at 12.

<sup>12</sup> Not only is 10 C.F.R. § 50.59 the only regulation cited in the contention itself and in Joint Petitioners' explanation of the bases for the contention, but collectively the petition and supporting expert witness report of Arnold Gundersen invoke section 50.59 more than fifty times.

<sup>13</sup> *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-94-3, 39 NRC 95, 101 n.7 (1994); *see also Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-12-20, 76 NRC 437, 439-40 (2012).

<sup>14</sup> See 10 C.F.R. § 2.206.

<sup>15</sup> LAR at 2.

<sup>16</sup> See *id.* § 50.59(c)(1)(i).

certain issues regarding information availability.<sup>17</sup> This Board has no authority to address such issues, however, because the Commission has prohibited Licensing Boards from hearing challenges to actions taken under 10 C.F.R. § 50.59.<sup>18</sup>

A recent decision of the Licensing Board in the *San Onofre* proceeding<sup>19</sup> is not to the contrary. There, unlike in this case, the Commission directed the Licensing Board to address the question of whether a confirmatory action letter issued to the licensee by the NRC Staff constituted a *de facto* license amendment that would be subject to a hearing opportunity. In doing so, the *San Onofre* Board used the criteria of 10 C.F.R. § 50.59 as *an analytical tool*. But the Board clarified that it was *not* using the section 50.59 criteria to “scrutiniz[e] the actual actions taken by [the licensee] under section 50.59.”<sup>20</sup> On the contrary, the Board recognized that “scrutinizing the actual actions taken by [a licensee] under section 50.59 . . . is prohibited.”<sup>21</sup> Thus, the *San Onofre* Board did not question the inability of licensing boards to hear challenges to section 50.59 determinations, but rather confirmed it.

*Second*, although an admissible contention must satisfy all the requirements of 10 C.F.R. § 2.309(f)(1), Joint Petitioners’ proffered contention satisfies virtually none. The contention fails even to mention, much less to grapple with, the four proposed changes in technical specifications that are the subject of the hearing notice to which Joint Petitioners purport to respond.

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<sup>17</sup> Several such issues were raised during the argument on standing and contention admissibility that the Board conducted by telephone on July 24, 2013. The primary issue relates to FirstEnergy’s choice of which information to include in the license amendment request and which information to retain only in its nonpublic files as part of the section 50.59 process. *See* Tr. at 7-8; *see also* Tr. at 24-25. FirstEnergy’s license amendment request provides very little information regarding the design changes and dimensions of the replacement steam generators, which form the basis of the requested technical specification changes (*see* Tr. 44-46) and the associated no significant hazards consideration evaluation. A potential intervenor responding to the hearing notice has very little information upon which to develop an informed contention because the design changes to the replacement steam generators are neither described nor referenced in the license amendment request. The NRC Staff indicated that it would issue requests for additional information to obtain the information needed to perform the Staff’s review (Tr. at 40-41), but potential intervenors have no such option. The same problem of information being unavailable exists with respect to filing a section 2.206 petition challenging the adequacy of FirstEnergy’s section 50.59 analysis (Tr. at 46-47).

<sup>18</sup> Similarly, insofar as the Petition could possibly be read as a challenge to the NRC Staff’s proposed no significant hazards consideration determination under 10 C.F.R. § 50.92(c), this Board lacks jurisdiction to adjudicate that claim as well. *See* 10 C.F.R. § 50.58(b)(6) (“No petition or other request for review of or hearing on the staff’s significant hazards determination will be entertained by the Commission.”).

<sup>19</sup> *See Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-13-7, 77 NRC 307 (2013).

<sup>20</sup> *Id.* at 23.

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

Contrary to 10 C.F.R. § 2.309(f)(1)(vi), which requires that an admissible contention “provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact,” the proffered contention provides no reference to any specific portion of the license amendment request that petitioners dispute. Indeed, the contention makes no specific reference whatsoever to FirstEnergy’s January 18, 2013 license amendment request. Contrary to 10 C.F.R. § 2.309(f)(1)(iii), the proffered contention is outside the scope of this proceeding, as it challenges the entire steam generator replacement project, rather than any aspect of the proposed changes to four technical specifications identified in the license amendment request. Contrary to 10 C.F.R. § 2.309(f)(1)(iv), the contention raises no issues that are material to any findings the NRC must make to approve the license amendment request, as it does not focus at all on the technical specifications that are the subject of that request. And, contrary to 10 C.F.R. § 2.309(f)(1)(v), the proposed contention — which is primarily based on the fact that steam generator replacements in other reactors have experienced problems — is not adequately supported. Even if a challenge to FirstEnergy’s 10 C.F.R. § 50.59 analysis of its replacement steam generator project were cognizable in this proceeding, Joint Petitioners offer only speculation regarding the alleged inadequacies of that analysis.

#### **B. Standing**

In their initial submission, Joint Petitioners claimed standing on the basis of the standing of their individual members and, in turn, premised the standing of their members primarily upon their residing within 50 miles of Davis-Besse.<sup>22</sup> In response, FirstEnergy and the NRC Staff challenged the applicability of a 50-mile proximity presumption to establish standing in a case such as this.<sup>23</sup> In their reply, Joint Petitioners then elaborated upon other possible grounds for standing,<sup>24</sup> which prompted motions to strike their expanded arguments.<sup>25</sup>

We need not resolve these disputes. Because it is clear that Joint Petitioners have not proffered an admissible contention, and their petition must be denied for this reason, the Board does not rule on Joint Petitioners’ standing.

### **III. ORDER**

For the foregoing reasons:

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<sup>22</sup> See Petition at 2-8.

<sup>23</sup> See FirstEnergy’s Answer at 13-17; NRC Staff’s Answer at 10-14.

<sup>24</sup> See Reply at 1-10.

<sup>25</sup> See generally NRC Staff’s Motion to Strike; FirstEnergy’s Motion to Strike.

A. Joint Petitioners' petition to intervene and for an adjudicatory public hearing is *denied*.

B. FirstEnergy's motion to strike portions of Joint Petitioners' reply is *denied* as moot.

C. The NRC Staff's motion to strike portions of Joint Petitioners' reply or, in the alternative, for leave to reply is *denied* as moot.

The proceeding before this Board is therefore terminated. In accordance with 10 C.F.R. § 2.311, any appeal to the Commission from this Memorandum and Order must be taken within twenty-five (25) days after it is served.

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Paul S. Ryerson, Chairman  
ADMINISTRATIVE JUDGE

Dr. Michael F. Kennedy  
ADMINISTRATIVE JUDGE

Nicholas G. Trikouras  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
August 12, 2013



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**OFFICE OF NUCLEAR REACTOR REGULATION**

**Eric J. Leeds**, Director

**In the Matter of**

**Docket No. 50-293  
(License No. DPR-35)**

**ENTERGY NUCLEAR  
OPERATIONS, INC.  
(Pilgrim Nuclear Power Station)**

**September 26, 2013**

By letter dated July 19, 2010, as supplemented by letter dated August 6, 2010, Pilgrim Watch (the Petitioner) filed a 10 C.F.R. § 2.206 petition. The Petitioner requested that the NRC take the following actions: (1) issue a Demand for Information (DFI) requiring Entergy Nuclear Operations, Inc. (Entergy or the Licensee) to demonstrate that all non-environmentally qualified inaccessible cables at Pilgrim Nuclear Power Station (Pilgrim) are capable of performing their required function; (2) certify that the location, age, and repair history of all cables (accessible and inaccessible) have been identified; (3) ensure that the Licensee monitors all cables before continued operation to demonstrate that the cables can perform their design functions; (4) ensure that the Licensee incorporates in its monitoring program, at a minimum, recommendations from certain aging management guidelines and NRC generic guidance; (5) verify, during the license renewal period, Entergy's implementation through routine baseline inspections; and (6) commit to a timely upgrade of the regulatory guidance for maintaining cable qualification and the verification that the cables can perform their design functions.

The final Director's Decision (DD) on this petition was issued on September 26, 2013. The final DD responds to the Petitioner's requested actions as follows: (1) denied the Petitioner's request to issue a DFI and to take certain non-enforcement actions (items 2-4) to demonstrate that accessible and inaccessible cables can perform their design functions, (5) considered the requested action as addressed by the completion of NRC's baseline inspection of license renewal activities in

which the NRC determined that the Licensee's commitment associated with the non-EQ inaccessible cables program was adequately implemented and inspected with no findings of significance identified, and (6) considered the requested action as addressed by the issuance of NRC Regulatory Guide 1.218.

Regarding the Petitioner's request to issue a DFI and to take certain non-enforcement actions to demonstrate that accessible cables can perform their design functions, the NRC Staff concluded that the Licensee's programs for cable condition monitoring and managing aging effects of inaccessible power cables have been adequately implemented, to the extent that there is reasonable assurance that cables subject to moisture will be adequately managed during the period of extended operation. The NRC did not identify any violations of regulatory requirements during its review. Accordingly, NRC denied the Petitioner's requests as stated above.

## **FINAL DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206**

### **I. INTRODUCTION**

By letter dated July 19, 2010, as supplemented by letter dated August 6, 2010, Ms. Mary Lampert of Pilgrim Watch (the Petitioner), filed a petition under Title 10 of the *Code of Federal Regulations* (10 C.F.R.) § 2.206, "Requests for Action under This Subpart," to Mr. R. W. Borchardt, Executive Director for Operations at the time, U.S. Nuclear Regulatory Commission (NRC).

#### **A. Action Requested**

The Petitioner requested that the NRC issue a Demand for Information requiring Entergy Nuclear Operations, Inc. (Entergy or the Licensee) to demonstrate that all non-environmentally qualified (non-EQ) inaccessible cables at Pilgrim Nuclear Power Station (Pilgrim) are capable of performing their required function, be it safety- or nonsafety-related. The Petitioner further requested that the NRC (i) certify that the location, age, and repair history of all cables (accessible and inaccessible) have been identified; (ii) ensure that the Licensee monitors all cables before continued operation to demonstrate that the cables can perform their design functions; and (iii) ensure that the Licensee incorporates in its monitoring program, at a minimum, recommendations from certain aging management guidelines and NRC generic guidance. The Petitioner also asked that the NRC commit to verifying, during the license renewal period, Entergy's implementation through routine baseline inspections and to a timely upgrade of the regulatory

guidance for maintaining cable qualification and the verification that the cables can perform their design functions.

As the basis of the request, the Petitioner asserted, in part, the following concerns:

- The NRC regulations require that plant owners ensure that electrical wiring is qualified to perform in the environmental conditions experienced during normal operation and during accidents. Pilgrim has no program today, as required by NRC regulations, to ensure operability of the submerged and/or wetted wires.
- Most electrical cables at Pilgrim have been exposed to significant moisture over the 40 years since their initial construction. The wires, and possibly the connections and splices inside conduits, are designed to operate properly only in a dry environment and are not designed to operate in a moist or wet environment. Thus, there is no assurance that these electrical cables will not fail if they are wet, submerged, or previously exposed to moisture.
- Wires degrade with age, and the oldest wires are most susceptible to degradation. Pilgrim is one of the oldest operating commercial reactors in the country, and the majority of the conduits and wires at Pilgrim were installed during the initial construction. There are no existing methods to ensure operability, short of visual inspection or replacing cables with ones designed to operate in a wet or submerged environment.
- As identified in several pertinent sections of Pilgrim's license renewal application (LRA) and safety evaluation report (SER), Pilgrim's aging management program, for the period from 2012 through 2032, is insufficient and does not provide reasonable assurance to the public. The Petitioner further stated that compliance with the NRC's regulations is intended to provide reasonable assurance that an electrical wire failure will neither initiate an accident nor make an accident more severe. The Petitioner also noted that Pilgrim has a long history of cables being submerged and/or wetted with no verification of the long-term operability that provides reasonable assurance of continued operation of these cables.

#### **B. Determination for NRC Review Under 10 C.F.R. § 2.206**

On August 9, 2010, the Petitioner and consultants of the Petitioner participated in a conference call with the NRC Office of Nuclear Reactor Regulation's Petition Review Board (PRB) to provide additional explanation and clarify the basis for the petition. The transcript of this meeting is a supplement to the petition and

is available under the Agencywide Documents Access and Management System (ADAMS) Accession No. ML102290198.

On December 13, 2010, the Petitioner requested a hearing on a contention related to Entergy's management of inaccessible cables in the Pilgrim license renewal proceeding. The PRB met on January 4, 2011, and determined that, because of the Petitioner's hearing request on December 13, 2010, her 10 C.F.R. § 2.206 petition concerns related to inaccessible cables would be held in abeyance until final disposition of the issues in the Pilgrim license renewal adjudicatory proceeding, which is consistent with Part III(C), "Criteria for Petition Evaluation," of NRC Management Directive (MD) 8.11, "Review Process for 10 CFR 2.206 Petitions" (ADAMS Accession No. ML041770328). The NRC informed the Petitioner of this determination in letters dated February 23 and May 31, 2011 (ADAMS Accession Nos. ML103400692 and ML111160334). Following the issuance of Pilgrim's renewed license on May 29, 2012, the PRB reconvened on June 5, 2012, and recommended returning the petition to the 10 C.F.R. § 2.206 process and accepting Ms. Lampert's petition, in part, for NRC Staff review. In a letter dated August 2, 2012 (ADAMS Accession No. ML121910227), the NRC informed the Petitioner that the petition was partially accepted for review under 10 C.F.R. § 2.206 and was being referred to the Office of Nuclear Reactor Regulation for appropriate action.

All publicly available documents related to the petition can be inspected at the Commission's Public Document Room (PDR) at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland 20852 and from the NRC's ADAMS Public Electronic Reading Room on the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. The petition and supplemental letter are under ADAMS Accession Nos. ML102090024 and ML102210411. NRC MD 8.11 (ADAMS Accession No. ML041770328) describes the petition review process. People who do not have access to ADAMS or who have problems accessing the documents in ADAMS should contact the NRC PDR reference staff by telephone at 1-800-397-4209, 301-415-4737 or by e-mail to [PDR.Resource@nrc.gov](mailto:PDR.Resource@nrc.gov).

## **II. DISCUSSION**

The Petitioner raised several concerns to support her request for enforcement action. The NRC Staff placed those concerns into three categories: cable reliability and monitoring, wet/submerged environments, and aging management. Each of these is addressed in this section.

### **A. Cable Reliability and Condition Monitoring**

The Petitioner is concerned that Pilgrim does not have a program, as required by NRC regulations, to ensure operability of submerged or wetted wires. The NRC regulations in 10 C.F.R. § 50.49, “Environmental qualification of electric equipment important to safety for nuclear power plants,” require plant owners to ensure that electrical wiring (cables) is designed to function in environmental conditions during normal operation and during accidents. The Petitioner asserted that Pilgrim has a long history of cables being submerged or wetted and is concerned that there is no verification of the long-term operability that provides reasonable assurance of continued operation of these cables.

The NRC regulations in Criterion XI, “Test Control,” of Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants,” to 10 C.F.R. Part 50, “Domestic Licensing of Production and Utilization Facilities,” require licensees to assess the condition of their components; to monitor the performance of structures, systems, and components in a manner sufficient to give reasonable assurance that they are capable of fulfilling their intended functions; and to establish a suitable test program to ensure that all testing necessary to demonstrate that components will perform satisfactorily in-service is identified and performed.

Entergy Nuclear Management Manual EN-DC-346, “Cable Reliability Program,” Revision 3 (ADAMS Accession No. ML12340A763), is the Licensee’s procedure to monitor the condition of power cables at Pilgrim. The objective of the Cable Reliability Program is to ensure the capability of underground medium-voltage (2 kilovolts to 35 kilovolts) and low-voltage (400 volts to 2 kilovolts) power cables to perform their intended functions. The program includes several testing methods that can be used for condition monitoring and aging assessments for the various medium- and low-voltage cables. The monitoring techniques and inspection methods that Entergy uses for this procedure are consistent with the methods described in Regulatory Guide (RG) 1.218, “Condition-Monitoring Techniques for Electric Cables Used in Nuclear Power Plants” (ADAMS Accession No. ML103510447). The NRC reviewed the Cable Reliability Program and found no deficiencies, as documented in NRC Inspection Report dated July 23, 2012 (ADAMS Accession No. ML12205A176).

### **B. Wet/Submerged Environments**

The Petitioner asserts that most electrical cables at Pilgrim have been exposed to significant moisture over the past 40 years since initial construction of the plant, and that the wires and possibly the connections and splices inside conduits are designed to operate properly only in a dry environment and not in a moist or wet environment. The Petitioner is concerned that there is no assurance that the

wires and splices will not fail if they are wet, submerged, or previously exposed to moisture.

The NRC regulations in 10 C.F.R. § 50.49 require that (1) cables important to safety must be designed to meet their intended function for the environment that they are subjected to; and (2) if cables have been exposed to conditions for which they are not designed, licensees must demonstrate, through adequate testing or a condition monitoring program, reasonable assurance that the cables can perform their intended design function for the licensed operating term.

The NRC acknowledges the validity of the issue the Petitioner raises that cables that are not designed to operate in a submerged condition are likely to experience early failures, which can potentially result in significant safety consequences. As noted by the Petitioner, this issue is stated in RG 1.218. A submerged condition in this case is referring to long-term cable submergence in water (i.e., greater than 3 consecutive days, which recognizes that temporary flooding is possible due to heavy rains or snow melt). This guidance should not be interpreted that all cables are not designed for submergence or permitted to be installed in a wet environment or allowed to be wetted. An example of a wet environment is a direct earth-buried cable where the soil could contain moisture. An example of a wetted environment is a cable that can be subject to high humidity or water spray (such as rain). The NRC recognizes that many medium- and low-voltage power cables, which are commonly used in nuclear power plants, are in fact designed for wet and wetted environments (strictly as defined in the preceding sentences). The NRC also has described examples of several failures as a result of cable submergence in various NRC generic communications.

The NRC acknowledges that more recent industry experience that the NRC licensees submitted in response to Generic Letter (GL) 2007-01, “Inaccessible or Underground Cable Failures That Disable Accident Mitigation Systems or Cause Plant Transients” (ADAMS Accession No. ML070360665), shows an increasing trend of inaccessible power cable failures and that the presence of water, moisture, or submerged conditions appear to be the predominant factor contributing to cable failure. As such, the NRC recently updated its inspection guidance on flood protection measures (Inspection Procedure (IP) 71111.06, “Flood Protection Measures,” ADAMS Accession No. ML11244A012) to require inspection of underground bunkers/manholes subject to flooding that contain cables whose failure could disable risk-significant equipment. Based on the inspection guidance, two to four bunkers/manholes should be inspected on an annual basis. Furthermore, NRC inspectors will review the bunkers/manholes until all are inspected; and then the cycle would be recommenced.

### ***1. Operating Experience***

On February 7, 2007, the NRC issued GL 2007-01, which requested licensees

to provide (1) failure history information for power cables within the scope of 10 C.F.R. § 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants” (the Maintenance Rule), and (2) a description of inspection, testing, and monitoring programs to detect degradation of inaccessible or underground cables supporting systems within the scope of the Maintenance Rule.

The Licensee responded to GL 2007-01 by letters dated May 3, 2007, and December 9, 2007 (ADAMS Accession Nos. ML071300361 and ML073521293). In these letters, the Licensee reported that it has had one cable failure within the scope of GL 2007-01. The Licensee stated that the cause of the failure was due to installation damage. In its letters dated January 7, 2011, and May 16, 2011, the Licensee further stated that it had conducted a review of more recent operating experience and indicated that there have been no failures found involving medium-voltage or low-voltage inaccessible cables. The Licensee has since researched operating experience in the corrective action program database since its response to GL 2007-01. Based on its review, the Licensee did not identify any failures of in-scope inaccessible 400-volt to 2-kilovolt cables.

To date, the NRC has not identified any power cable failures at Pilgrim beyond the one failure identified above; however, it has identified two inspection findings there between 2009 and 2011 related to cable submergence. On July 28, 2011, the NRC issued Inspection Report 05000293/2011003 (ADAMS Accession No. ML112092393), which documented the results of a routine inspection at Pilgrim. The NRC inspectors observed partially submerged medium-voltage cables in a manhole and vault containing startup transformer cables. The inspectors found that these cables were not designed to be installed in a submerged environment. The inspectors also noted that no automatic dewatering or drainage systems existed in the manhole to prevent the cables from becoming submerged. They also observed that Entergy had previously identified submerged cables from this manhole on multiple occasions and that corrective actions were insufficient to preclude these cables from being submerged. This finding was issued in NRC Inspection Report 05000293/2010003 (ADAMS Accession No. ML102100150).

Entergy initiated a condition report to address the issue, specified actions to increase the frequency of the dewatering activities to 1-week intervals, and completed its corrective actions to install an automatic dewatering device in the affected manhole. The cables were placed under load during the subsequent refueling outage to demonstrate their ability to handle electrical current. The corrective actions taken and the Licensee’s continued implementation of its cable condition monitoring program are acceptable to the NRC.

The NRC determined the findings to be of very low safety significance because the condition did not contribute to the likelihood of a reactor trip or the unavailability of mitigating systems equipment. In the most recent NRC inspection of Pilgrim’s flood protection measures affecting cables located in underground

manholes, the NRC inspectors monitored Entergy's maintenance inspection and dewatering activities associated with a sample of manholes containing underground safety- and non-safety-related power cables. The NRC identified no deficiencies or findings (Inspection Report 05000293/2012003, dated July 23, 2012, ADAMS Accession No. ML12205A176). While the NRC's inspection findings did not identify any specific violations of its requirements, the NRC Staff will continue to evaluate cable submergence issues at Pilgrim (and at other nuclear power plants) and to verify compliance with regulations and the adequacy of corrective actions through its reactor oversight process (ROP).

### C. Aging Management of Inaccessible Cables

The Petitioner asserts that wires degrade with age, that the oldest wires are the most susceptible to degradation, that Pilgrim is one of the oldest operating commercial reactors in the country, and that the majority of the conduits and wires at Pilgrim were installed during the initial construction. The Petitioner is concerned that there are no existing methods, short of visual inspection or replacement, to ensure the operability of cables designed to operate in a wet or submerged environment. The Petitioner also is concerned that Pilgrim's aging-management program for 2012 through 2032, as identified in several pertinent sections of Pilgrim's LRA<sup>1</sup> and the NRC Staff's SER,<sup>2</sup> is insufficient and does not provide the public with reasonable assurance.

The NRC generically communicated the issue that the Petitioner described in NRC Information Notice (IN) 2010-26, "Submerged Electrical Cables" (ADAMS Accession No. ML102800456), which documented that operating experience shows that the number of cable failures is increasing with plant age and that cable failures have been occurring within the nuclear power plants' 40-year licensing periods. These cable failures have resulted in plant transients and shutdowns, loss of safety functions and redundancy, entries into technical specification limiting conditions for operation, and challenges to plant operators. In many cases, the failed cables were identified through existing testing practices, but some of the failures might have occurred before the failed condition was identified. Based on this operating experience, the NRC Staff determined that the inaccessible or underground power cables are no longer inherently reliable as initially thought during the implementation of the NRC's Maintenance Rule. Therefore, the NRC Staff has emphasized that it is necessary to monitor the condition of electric power cables throughout their installed life through the use of cable-monitoring

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<sup>1</sup> "License Renewal Application, Pilgrim Nuclear Power Station," dated January 25, 2006 (ADAMS Accession No. ML060300028).

<sup>2</sup> "Safety Evaluation Report Related to the License Renewal of Pilgrim Nuclear Power Station," NUREG-1891, dated November 30, 2011 (ADAMS Accession No. ML073241016).

techniques, as described in RG 1.218. The NRC considers the Licensee's Cable Reliability Program, as discussed in Section A of this Director's Decision, an acceptable procedure for monitoring the condition of its electric power cables.

### ***1. License Renewal***

As documented in the NRC Staff's SER, Supplement 2, related to the "License Renewal of Pilgrim Nuclear Power Station," dated June 2011, the NRC evaluated Pilgrim's "Non-EQ Inaccessible Medium Voltage Cable Program" and found it acceptable, because it was consistent with industry and plant-specific operating experience and current NRC Staff recommendations. In response to the NRC Staff recommendations of Revision 2 to NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," and its review of information provided in industry responses to GL 2007-01, including the NRC and Electric Power Research Institute guidance documents, Entergy elected to enhance its existing aging management program (AMP) for non-EQ inaccessible medium-voltage cables to include monitoring of low-voltage cable (400 volts to 2 kilovolts) with a license renewal-intended function and to increase the minimum frequency of non-EQ inaccessible cable testing and inspections. Entergy's enhancements to its AMP for these cables included commitments to test cables for degradation once every 6 years, to inspect the manholes yearly, and to increase the frequency of testing and inspection based on its evaluation of test results. The Licensee also revised its cable monitoring program to include condition-based (event-driven) inspections (e.g., as a result of heavy rain or flooding), including the verification of the dewatering system function.

Based on the license renewal review of Entergy's proposed inaccessible cable monitoring program, the NRC Staff concluded that Entergy's program will adequately manage the aging effects of inaccessible power cables (consistent with industry operating experience) to the extent that there is reasonable assurance that inaccessible power cables at Pilgrim (400 volts to 35 kilovolts) subject to moisture will be adequately managed during the period of extended operation.

The medium-voltage cable condition monitoring program at Pilgrim was subsequently inspected by the NRC in May 2012. The inspection was documented in NRC Inspection Report 05000293/2012007 (ADAMS Accession No. ML12166A058). Specifically, the inspection of the commitment associated with the cable condition-monitoring program (Commitment 15, License Renewal, "Implement the Non-EQ Inaccessible Medium-Voltage Cable Program as described in LRA Section B.1.19") was acceptable. The NRC's inspection identified no significant findings.

The Petitioner requested several non-enforcement-type actions in the petition. Specifically, she requested that the NRC do the following:

- (i) Certify that the location, age, and repair history of all cables (accessible and inaccessible) have been identified.
- (ii) Ensure that the Licensee monitors all cables before continued operation to demonstrate that the cables can perform their design functions.
- (iii) Ensure that the Licensee incorporates in its monitoring program, at a minimum, recommendations from certain aging management guidelines and NRC generic guidance.
- (iv) Verify Entergy's implementation through routine baseline inspections during the license renewal period.
- (v) Commit to a timely upgrade of the regulatory guidance for maintaining cable qualification and the verification that the cables can perform their design functions.

While the NRC Staff acknowledges that the Petitioner presents valid points to support her concerns, the NRC has previously identified the generic issues raised and has documented them in numerous NRC generic communications (e.g., IN 2002-12, "Submerged Safety-Related Electrical Cables"; GL 2007-01; IN 2010-26; and RG 1.218). Specifically, in terms of addressing these issues at Pilgrim, the NRC Staff has concluded that the Licensee's programs will adequately manage the aging effects of inaccessible power cables to give reasonable assurance that cables subject to moisture will be adequately managed during extended operation. Therefore, the actions requested by the Petitioner in items (i), (ii), and (iii) are not warranted for the NRC to make a reasonable assurance determination regarding the Licensee's management of non-EQ inaccessible cables at Pilgrim.

The NRC notes that requested action items (iv) and (v) are addressed, in part, by the completion of planned activities following the submission of the petition. Specifically, the NRC's baseline inspection of license renewal activities under Temporary Instruction (TI) 2516/001, "Review of License Renewal Activities" (ADAMS Accession No. ML110620255), was completed by inspection report dated June 13, 2012.

The NRC determined that the commitment associated with the non-EQ inaccessible cables program was implemented and inspected with no finding of significance identified, thereby completing requested action item (iv). Additionally, NRC RG 1.218, issued in April 2012, gave specific guidance on condition monitoring of cables. Therefore, requested action item (v) is addressed.

The NRC follows existing regulatory processes, policies, and programs (for example, its reactor oversight process) to verify that the Licensee properly implements these approved programs. For the performance deficiencies and inspection findings that the NRC identified at Pilgrim, the agency will continue to

monitor the progress of the Licensee's completion of corrective actions through planned inspections consistent with the NRC's ongoing ROP.

### **III. CONCLUSION**

Based on the discussion above, the Office of Nuclear Reactor Regulation has denied the Petitioner's request to issue a Demand for Information to require Entergy to demonstrate that all inaccessible cables at Pilgrim are capable of performing their functions. The Office has also denied the Petitioner's request for the NRC to take certain actions to demonstrate that accessible and inaccessible cables can perform their design functions. These actions included requests for NRC to certify that (1) all cables have been identified as to their location, age, and repair history; (2) all cables are monitored by the Licensee prior to continued operation; and (3) the Licensee's monitoring program incorporate at a minimum, recommendations for certain aging management guidelines and NRC generic guidance. As explained above, the NRC Staff has determined that the Licensee's programs for cable condition monitoring and managing aging effects of inaccessible power cables have been adequately implemented, to the extent that there is reasonable assurance that cables subject to moisture will be adequately managed during the period of extended operation. The NRC did not identify any violations of regulatory requirements during its review. Based on the above, enforcement action as requested by the Petitioner is not warranted.

As provided for in 10 C.F.R. § 2.206(c), a copy of this Director's Decision will be filed with the Secretary of the Commission for the Commission to review. The Decision will constitute the final action of the Commission 25 days after the date of the Decision, unless the Commission, on its own motion, institutes a review of the Decision within that time.

**FOR THE NUCLEAR  
REGULATORY COMMISSION**

Eric J. Leeds, Director,  
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,  
this 26th day of September 2013.

## ATTACHMENT

### **COMMENTS RECEIVED FROM THE PETITIONER ON THE PROPOSED DIRECTOR'S DECISION LETTER OF APRIL 19, 2013**

The U.S. Nuclear Regulatory Commission (NRC) sent a copy of the proposed Director's Decision to Ms. Mary Lampert, Director of Pilgrim Watch (the Petitioner), for comment on March 20, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13018A454). The Petitioner responded with comments on April 19, 2013 (ADAMS Accession No. ML13115A219). The NRC's response to the comments received is provided below:

#### **Comment 1 (Summarized)**

Pilgrim Watch's (PW's) fundamental comment is that the proposed Decision fails to consider both issues and facts raised by PW, as well as facts that the NRC plainly should have known and considered on its own. The proposed Decision refers to the Pilgrim license renewal, but there is nothing to show that the proposed Decision considered the facts provided in and issues raised by PW's request for hearing in that license renewal — despite the fact that PW's February 4, 2011 filing (ADAMS Accession No. ML110450021) in this petition included copies of those requests and specifically pointed out that "both requests provide updated information that pertains not only to aging management going forward but also to current operating issues."

#### ***Response***

The final Director's Decision responds to the issues and concerns specifically raised by the Petitioner in its July 19, 2010, petition, the supplemental letter dated August 6, 2010, and the information presented in an August 10, 2010, teleconference. As indicated in the Office of Nuclear Reactor Regulation Director's acknowledgment letter to the Petitioner dated August 2, 2012 (ADAMS Accession No. ML121910227), the Petition Review Board determined that four specific issues and concerns from these documents met the criteria for review under 10 C.F.R. § 2.206. In terms of the Pilgrim license renewal application (LRA), the following issue submitted by the Petitioner was accepted for 10 C.F.R. § 2.206 review consideration:

As identified in several pertinent sections of Pilgrim's license renewal application and the safety evaluation report, Pilgrim's aging management program, for the

period 2012-2032, is insufficient and does not provide the public with reasonable assurance.

The Director's Decision responds to this specific issue under Section II.C.1, "License Renewal" (at p. 193), by addressing the concerns presented by the Petitioner in the July 10, 2010, petition regarding the Licensee's aging management program (Petition at 7-14). Additionally, throughout the comment letter, the Petitioner refers to the February 4, 2011 letter (ADAMS Accession No. ML110450021) as a filing "in this 2.206 petition" that included PW's December 2010 and January 2011 requests for new hearing in the relicensing proceeding and that both requests provided updated information that pertains not only to aging management going forward but also to current operating issues. However, this letter and its attachments were not accepted for consideration under the 2.206 review process and, therefore, were not considered in the Director's Decision. The Petitioner's letter of February 4, 2011, was addressed by the NRC in a letter dated May 31, 2010 (ADAMS Accession No. ML111160334).

#### **Comment 2 (Summarized)**

As for other facts and issues the proposed Decision should have considered, on April 8, 2013, PW sent NRC's Region I Administrator, William Dean, a number of questions regarding Pilgrim's non-EQ inaccessible cables and what the NRC knew about them. Before making any final Decision on PW's petition, the NRC must actually consider the highly material facts.

#### ***Response***

As acknowledged by the Petitioner in the April 19, 2013, comment letter, the Region replied to the Petitioner's questions by e-mail. While the Petitioner believes the answers provided by the Region were not responsive to her concerns, the need for the NRC to respond to the questions under the 10 C.F.R. § 2.206 process to demonstrate sufficient basis for its conclusion in the Director's Decision is not justified. In short, the Director's Decision describes the issues raised by the Petitioner, discusses the safety significance of the issues, and explains the Staff's disposition of and future oversight of those issues. As stated in the Director's Decision, the agency will continue to evaluate cable submergence issues at Pilgrim (and at other nuclear power plants) and to verify compliance with regulations and the adequacy of corrective actions through its reactor oversight process.

### **Comment 3 (Summarized)**

The proposed Decision largely ignores the pages of critical facts that Pilgrim's petition and August 6, 2010 supplement set forth and supported. The proposed Decision lacks the required basis.

#### ***Response***

As discussed above, both the July 19, 2010, and August 6, 2010, information was considered in the 10 C.F.R. § 2.206 evaluation. As explained in the Director's Decision, the NRC Staff determined that the Licensee's programs for cable condition monitoring and managing aging effects of inaccessible power cables have been adequately implemented, to the extent that there is reasonable assurance that cables subject to moisture will be adequately managed during the period of extended operation. This determination was supported by NRC evaluation of the Licensee's programs through various regulatory processes including the review of its aging management program during license renewal, response to generic communications (e.g., Generic Letter 2007-01), and the verification of the Licensee's implementation of its programs, compliance with regulations, and adequacy of corrective actions through the NRC's reactor oversight process. The NRC did not identify any violations of regulatory requirements pertaining to the concerns raised in the petition. Therefore, as explained in the Director's Decision, enforcement action as requested by the Petitioner is not warranted.

The NRC Staff has determined that the comments provided by the Petitioner did not provide any relevant additional information and support for the petition that had not already been considered. Thus, the comments did not change the conclusion of the proposed Director's Decision, and the final Director's Decision denies the Petitioner's request for enforcement action.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Allison M. Macfarlane**, Chairman  
**Kristine L. Svinicki**  
**George Apostolakis**  
**William D. Magwood, IV**  
**William C. Ostendorff**

**In the Matter of**

**Docket Nos. 50-352-LR  
50-353-LR**

**EXELON GENERATION  
COMPANY, LLC  
(Limerick Generating Station, Units 1  
and 2)**

**October 31, 2013**

**LICENSE RENEWAL APPLICATIONS: SEVERE ACCIDENT  
MITIGATION ALTERNATIVES ANALYSIS**

Challenges to Category 1 findings based on new and significant information require a waiver of 10 C.F.R. Part 51, Subpart A, Appendix B, in order to be litigated in a license renewal adjudication.

**LICENSE RENEWAL APPLICATIONS: SEVERE ACCIDENT  
MITIGATION ALTERNATIVES ANALYSIS**

The exception in 10 C.F.R. § 51.53(c)(3)(ii)(L) operates as the functional equivalent of a Category 1 issue, removing SAMAs from litigation in certain license renewal adjudications.

## **WAIVER OF RULE**

The Commission reviews waiver petitions under 10 C.F.R. § 2.335, as well as Commission case law.

## **WAIVER OF RULE**

In interpreting section 2.335, the Commission identified four factors — often referred to as the “*Millstone* factors” — that waiver petitioners must satisfy.

## **LICENSING BOARDS**

A licensing board may not disregard binding Commission case law.

## **LICENSING BOARDS: REFERRED RULINGS**

Although the Commission disfavors piecemeal review of licensing board decisions, boards may refer rulings that, although interlocutory, raise significant and novel legal or policy issues or require the Commission’s resolution to materially advance the orderly disposition of the proceeding.

## **WAIVER OF RULE**

Section 2.335(b) provides a limited exception to our general prohibition against challenges to NRC rules or regulations in adjudicatory proceedings.

## **WAIVER OF RULE**

To litigate an issue that otherwise would be outside the scope of an adjudication, a petitioner must file a petition for waiver showing that special circumstances with respect to the subject matter of the particular proceeding are such that the application of the rule or regulation (or a provision of it) would not serve the purposes for which it was adopted. The waiver petitioner must include an affidavit that states with particularity the special circumstances that justify waiver of the rule.

## **WAIVER OF RULE**

The waiver standard is stringent by design. The NRC has discretion to transact its business broadly, through rulemaking, or case by case, through adjudication. When the Commission engages in rulemaking, it is “carving out” issues from adjudication for generic resolution. Therefore, to challenge the

generic application of a rule, a petitioner seeking waiver must show that there is something extraordinary about the subject matter of the proceeding such that the rule should not apply.

### **WAIVER OF RULE**

In 2005, in the *Millstone* license renewal proceeding, the Commission compiled the waiver case law to reflect the four-part test that it has long used. To set aside a Commission rule or regulation in an adjudicatory proceeding, a petitioner must demonstrate that: (i) the rule's strict application would not serve the purposes for which it was adopted; (ii) special circumstances exist that were not considered, either explicitly or by necessary implication, in the rulemaking proceeding leading to the rule sought to be waived; (iii) those circumstances are unique to the facility rather than common to a large class of facilities; and (iv) waiver of the regulation is necessary to reach a significant safety problem.

### **WAIVER OF RULE**

The fourth *Millstone* factor also may apply to a significant environmental issue.

### **NATIONAL ENVIRONMENTAL POLICY ACT: ENVIRONMENTAL REPORT, SEVERE ACCIDENT MITIGATION ALTERNATIVES ANALYSIS**

Like all of the Commission's environmental regulations in 10 C.F.R. Part 51, section 51.53(c)(3)(ii)(L) is aimed at satisfying the NRC's obligations under the National Environmental Policy Act (NEPA). NEPA requires the NRC to prepare a "detailed statement," i.e., an environmental impact statement (EIS), discussing the environmental impacts, alternatives, and mitigation measures for any "major Federal action[ ] significantly affecting the quality of the human environment." To assist the NRC in the preparation of a supplemental EIS, the NRC requires license renewal applicants to prepare an environmental report. Section 51.53(c)(3)(ii)(L), in particular, requires that an environmental report include a discussion of SAMAs if the NRC has not considered them previously for the applicant's plant.

### **LICENSE RENEWAL APPLICATIONS: SEVERE ACCIDENT MITIGATION ALTERNATIVES ANALYSIS**

To litigate SAMA-related issues in an adjudicatory proceeding, the Commission requires the demonstration of a potentially significant deficiency in the

SAMA analysis — that is, a deficiency that credibly could render the SAMA analysis unreasonable under NEPA standards.

## **MEMORANDUM AND ORDER**

The Licensing Board has referred to us its ruling denying Natural Resources Defense Council's (NRDC's) petition to waive a provision of our regulations.<sup>1</sup> For the reasons set forth below, we take review of the referred ruling. We find that the Board erred in its reasoning for denying NRDC's waiver petition, but we affirm the Board's decision on a different ground.

### **I. BACKGROUND**

Exelon Generation Company, LLC, has applied to renew its operating licenses for Limerick Generating Station, Units 1 and 2, for an additional 20 years. NRDC requested a hearing on Exelon's license renewal application, proposing four contentions.<sup>2</sup> Of those contentions, the Board admitted only one — a narrowed version of Contention 1-E, which claimed that Exelon's Environmental Report failed to include new and significant information relating to severe accident mitigation.<sup>3</sup>

Exelon and the NRC Staff appealed the Board's contention admissibility ruling.<sup>4</sup> Both Exelon and the Staff argued that Contention 1-E constituted a collateral attack on 10 C.F.R. § 51.53(c)(3)(ii)(L).<sup>5</sup> The rule exempts Exelon from

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<sup>1</sup> LBP-13-1, 77 NRC 57 (2013).

<sup>2</sup> Natural Resources Defense Council Petition to Intervene and Notice of Intention to Participate (Nov. 22, 2011).

<sup>3</sup> See LBP-12-8, 75 NRC 539, 561-62 (2012). NRDC's motion to admit a new waste-confidence-related contention currently is pending before the Board; the Board is holding that contention in abeyance in accordance with our direction in CLI-12-16. See Memorandum (Clarifying the Board's July 12, 2013 Order) (Aug. 6, 2013) at 2 (unpublished) (Board Clarification Order); Order (Suspending Procedural Date Related to Proposed Waste Confidence Contention) (Aug. 8, 2012) at 3 (unpublished) (citing *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63 (2012)); NRDC's Motion for Leave to File a New Contention Concerning Temporary Storage and Ultimate Disposal of Nuclear Waste at Limerick (July 9, 2012); Natural Resources Defense Council's Resubmission of Contentions in Response to Staff's Supplemental Draft Environmental Impact Statement (May 30, 2013) at 2-3 (Resubmitted Contentions).

<sup>4</sup> Exelon's Notice of Appeal of LBP-12-08 (Apr. 16, 2012); Exelon's Brief in Support of the Appeal of LBP-12-08 (Apr. 16, 2012) (Exelon Appeal); NRC Staff's Notice of Appeal of LBP-12-08 (Apr. 16, 2012); NRC Staff's Appeal of LBP-12-08 (Apr. 16, 2012) (Staff Appeal).

<sup>5</sup> See Exelon Appeal at 6-7; Staff Appeal at 5-6.

including in its Environmental Report a site-specific severe accident mitigation alternatives (SAMA) analysis because the Staff previously considered severe accident mitigation design alternatives (SAMDAs) in the Final Environmental Statement supporting issuance of the Limerick operating licenses.<sup>6</sup> We agreed that the contention impermissibly challenged section 51.53(c)(3)(ii)(L).<sup>7</sup>

Nonetheless, in light of an apparent ambiguity in our license renewal regulations — which, on the one hand exempt Exelon and similarly situated license renewal applicants from including a SAMA analysis in their environmental reports, but on the other hand require an applicant to identify “any new and significant information of which it is aware” — we invited NRDC to submit a petition to waive the SAMA-analysis exception.<sup>8</sup> We likened the regulatory conflict to other instances in our license renewal adjudications where a petitioner claimed that purported “new and significant information” called into question a “Category 1,” or broadly applicable, environmental-impact finding codified in 10 C.F.R. Part 51.<sup>9</sup> Challenges to Category 1 findings based on new and significant information require a waiver of 10 C.F.R. Part 51, Subpart A, Appendix B, in order to be litigated in a license renewal adjudication.<sup>10</sup> We held that “the exception in section 51.53(c)(3)(ii)(L) operates as the functional equivalent of a Category 1 issue, removing SAMAs from litigation in this, as well as certain other, case-by-case license renewal adjudications.”<sup>11</sup> Accordingly, we remanded

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<sup>6</sup>See generally “Final Environmental Statement Related to the Operation of Limerick Generating Station, Units 1 and 2,” NUREG-0974 Supplement (Aug. 1989) (ADAMS Accession No. ML11221A204) (1989 SAMDA Analysis). The 1989 analysis considered SAMDAs, a subset of mitigation alternatives that are based on a plant’s design. See CLI-12-19, 76 NRC 377, 382 (2012).

<sup>7</sup>CLI-12-19, 76 NRC at 386.

<sup>8</sup>See *id.* at 385-86, 388.

<sup>9</sup>See *id.* at 386. “Category 2” issues, on the other hand, require a site-specific analysis for the plant whose license is up for renewal. “Severe accidents” is a Category 2 site-specific issue in 10 C.F.R. Part 51, Subpart A, Appendix B. Our remand decision provides a brief discussion of Category 1 and Category 2 issues. See CLI-12-19, 76 NRC at 381-82. The Generic Environmental Impact Statement for License Renewal (GEIS) provides the environmental analysis that supports our “Category 1” and “Category 2” findings. See “Generic Environmental Impact Statement for License Renewal of Nuclear Plants — Main Report” (Final Report), NUREG-1437, Vol. 1 (May 1996) (ADAMS Accession No. ML040690705) (GEIS); “Generic Environmental Impact Statement for License Renewal of Nuclear Plants — Main Report” (Final Report), NUREG-1437, Rev. 1, Vol. 1 (June 2013) (ADAMS Accession No. ML13106A241) (GEIS Rev. 1). See generally Final Rule: “Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses,” 78 Fed. Reg. 37,282 (June 20, 2013) (GEIS Revisions). In our recent revisions to the GEIS, we did not change the Category 2 status of severe accidents or the exception in 10 C.F.R. § 51.53(c)(3)(ii)(L). See GEIS Revisions, 78 Fed. Reg. at 37,289-90.

<sup>10</sup>See Entergy Nuclear Vermont Yankee, LLC (Vermont Yankee Nuclear Power Station), CLI-07-3, 65 NRC 13, 17, 20 (2007) (Vermont Yankee/Pilgrim).

<sup>11</sup>CLI-12-19, 76 NRC at 386.

the case to the Board for the limited purpose of permitting NRDC to file a waiver petition.<sup>12</sup> We included in the remand all of NRDC’s SAMA-related contentions, Contentions 1-E, 2-E, and 3-E, to the extent the Board denied them as challenges to section 51.53(c)(3)(ii)(L).<sup>13</sup>

NRDC thereafter filed a waiver petition that again raised the issues that the Board originally had admitted in Contention 1-E, as well as an issue in Contention 3-E that the Board originally had rejected.<sup>14</sup> With regard to Contention 1-E, NRDC sought to litigate its claims that: (1) “Exelon has omitted from its [Environmental Report] a required analysis of new and significant information regarding potential new [SAMAs] previously considered for other [Mark II boiling water reactors]”; and (2) “Exelon’s reliance on data from Three Mile Island . . . in its analysis of the significance of new information regarding economic cost risk constitutes an inadequate analysis of new and significant information.”<sup>15</sup> With regard to Contention 3-E, NRDC sought to litigate the claim that Exelon must use “modern techniques for assessing whether the newly considered [SAMAs] are cost-beneficial.”<sup>16</sup> Exelon and the Staff opposed NRDC’s waiver petition, arguing that it failed to satisfy our waiver standard in 10 C.F.R. § 2.335(b).<sup>17</sup>

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<sup>12</sup> *Id.* at 388.

<sup>13</sup> We did not include in the remand NRDC’s remaining contention, Contention 4-E, which challenged the Environmental Report’s discussion of the “no-action alternative,” an unrelated issue. *See id.* at 388 & n.58. The Board rejected Contention 4-E as inadmissible. *See LBP-12-8*, 75 NRC at 570.

<sup>14</sup> Natural Resources Defense Council’s Petition, by Way of Motion, for Waiver of 10 C.F.R. § 51.53(c)(3)(ii)(L) as Applied to Application for Renewal of Licenses for Limerick Units 1 and 2 (Nov. 21, 2012) (Waiver Petition). NRDC attached two declarations in support of its waiver petition. Declaration of Christopher J. Weaver, Ph.D., on Behalf of the Natural Resources Defense Council in Support of Motion for Waiver (Nov. 21, 2012) (Weaver Declaration); Declaration of Geoffrey H. Fettus, Counsel for the Natural Resources Defense Council (NRDC), Regarding Waiver of 10 C.F.R. § 51.53(c)(3)(ii)(L) as Applied to Application for Renewal of Licenses for Limerick Units 1 and 2 (Nov. 21, 2012) (Fettus Declaration).

NRDC continues to assert its disagreement with our determination in CLI-12-19 that a waiver is required. *See* Natural Resources Defense Council’s Brief in Support of Waiver of 10 C.F.R. § 51.53(c)(3)(ii)(L) as Applied to Application for Renewal of Licenses for Limerick Units 1 and 2 (Mar. 13, 2013) at 28 (NRDC Initial Brief); Waiver Petition at 13. To the extent that NRDC’s claim is, in substance, a motion for reconsideration of our determination in CLI-12-19, its request is procedurally defective, out of time, and fails to assert compelling circumstances justifying reconsideration. *See* 10 C.F.R. § 2.323(e); *Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 and 3), CLI-10-9, 71 NRC 245, 252 (2010).

<sup>15</sup> Waiver Petition at 3.

<sup>16</sup> *Id.*

<sup>17</sup> Exelon’s Response Opposing NRDC’s Petition for Waiver of 10 C.F.R. § 51.53(c)(3)(ii)(L) (Dec. 14, 2012) at 3-4 (Exelon Answer); Exelon’s Counter Affidavit Supporting Exelon’s Response Opposing NRDC’s Petition for Waiver of 10 C.F.R. § 51.53(c)(3)(ii)(L) (Dec. 14, 2012) (Exelon Affidavit); NRC Staff Answer to Natural Resources Defense Council Petition for Waiver of 10 C.F.R.

(Continued)

We review waiver petitions under section 2.335, as well as our case law.<sup>18</sup> In interpreting section 2.335, we identified four factors — often referred to as the “*Millstone* factors” — that waiver petitioners must satisfy. The Board’s analysis began and ended with the first *Millstone* factor — a demonstration that applying the rule would not serve its intended purpose.<sup>19</sup> The Board determined that the purpose of the exception in section 51.53(c)(3)(ii)(L) “is to exempt those plants that have already performed SAMA analyses from considering [SAMAs] at license renewal.”<sup>20</sup> The Board then reasoned that the purpose of the SAMA-analysis exception “will always be met if no further analysis is required or submitted by the applicant.”<sup>21</sup> Based on its interpretation of the rule, the Board therefore concluded that the exception in section 51.53(c)(3)(ii)(L) is “unwaivable.”<sup>22</sup> Accordingly, the Board denied the waiver petition. Finding our remand of the proceeding incompatible with its own finding that waiver of section 51.53(c)(3)(ii)(L) is an “impossibility,” however, the Board referred to us its ruling, seeking a clarification of the interplay between section 51.53(c)(3)(ii)(L) and our waiver criteria in section 2.335(b).<sup>23</sup> The parties have filed initial and response briefs to offer their views on the Board’s decision.<sup>24</sup>

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§ 51.53(c)(3)(ii)(L) (Dec. 14, 2012) at 1 (Staff Answer). NRDC replied. Reply of Natural Resources Defense Council in Support of Petition, by Way of Motion, for Waiver of 10 C.F.R. § 51.53(c)(3)(ii)(L) as Applied to Application for Renewal of Licenses for Limerick Units 1 and 2 (Dec. 21, 2012).

<sup>18</sup> See generally *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-05-24, 62 NRC 551, 559-60 & nn.29-34 (2005).

<sup>19</sup> See LBP-13-1, 77 NRC at 66; *Millstone*, CLI-05-24, 62 NRC at 560; 10 C.F.R. § 2.335(b). In denying NRDC’s waiver petition, the Board declined to apply the *Millstone* test, opining that it “establishes an appreciably higher burden for . . . waiver seekers than does [section 2.335(b)].” LBP-13-1, 77 NRC at 64. According to the Board, only the first two *Millstone* factors are consistent with the requirements of section 2.335(b). *Id.* We disagree. The *Millstone* decision, which aggregates cases interpreting the waiver standard, is an example of a uniform, permissible interpretation of our regulations. *See U.S. Steel Mining Co., LLC v. Director, OWCP*, 386 F.3d 977, 985 (11th Cir. 2004). All four of the *Millstone* requirements derive from the language and purpose of section 2.335(b). Further, a licensing board may not disregard binding Commission case law. *Cf. National Federation of Federal Employees v. Federal Labor Relations Authority*, 412 F.3d 119 (D.C. Cir. 2005) (“[A]gencies act arbitrarily and capriciously when they ‘ignore [their] own relevant precedent.’” (quoting *BB&L, Inc. v. National Labor Relations Board*, 52 F.3d 366, 369 (D.C. Cir. 1995))). *Accord Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), LBP-09-4, 69 NRC 170, 184 (2009), *aff’d*, CLI-09-20, 70 NRC 911, 917-18, 924 (2009) (acknowledging that a licensing board is bound by Commission precedent; “it is for the Commission, not licensing boards, to revise its rulings”).

<sup>20</sup> LBP-13-1, 77 NRC at 66.

<sup>21</sup> *Id.* (emphasis omitted).

<sup>22</sup> *Id.*

<sup>23</sup> *Id.* at 69. *See* 10 C.F.R. § 2.323(f)(1).

<sup>24</sup> NRDC Initial Brief; Exelon’s Initial Brief in Response to the Referral of LBP-13-1 to the  
(Continued)

As discussed below, we take review of the Board’s referred ruling, and find that the Board erred in concluding that it is impossible to waive the exception in section 51.53(c)(3)(ii)(L). Nevertheless, we affirm, on different grounds, the Board’s denial of the waiver petition.

## II. DISCUSSION

Although we disfavor piecemeal review of licensing board decisions, boards may refer rulings that, although interlocutory, raise “significant and novel legal or policy issues” or require our “resolution . . . to materially advance the orderly disposition of the proceeding.”<sup>25</sup> We find that the Board has raised a significant and novel issue that warrants our attention. The Board’s referral questions the applicability of one of our basic rules of practice, and it could have broad-reaching implications in future license renewal proceedings.<sup>26</sup> We therefore take review of the Board’s referred ruling. We begin with an overview of our waiver criteria in section 2.335(b).

Section 2.335(b) provides a limited exception to our general prohibition against challenges to NRC rules or regulations in adjudicatory proceedings.<sup>27</sup> To litigate an issue that otherwise would be outside the scope of an adjudication, a petitioner must file a petition for waiver showing that “special circumstances with respect to the subject matter of the particular proceeding are such that the application of the rule or regulation (or a provision of it) would not serve the purposes for which

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Commission (Mar. 13, 2013); NRC Staff’s Brief on the Board’s Referred Ruling in LBP-13-1 (Mar. 13, 2013); Natural Resources Defense Council’s Response Brief in Support of Waiver of 10 C.F.R. § 51.53(c)(3)(ii)(L) As Applied to Application for Renewal of Licenses for Limerick Units 1 and 2 (Mar. 20, 2013); Exelon’s Reply Brief in Response to the Referral of LBP-13-1 to the Commission (Mar. 20, 2013); NRC Staff’s Reply on the Board’s Referred Ruling in LBP-13-1 (Mar. 20, 2013). *See generally* Unopposed Motion Requesting Briefing (Feb. 19, 2013); Order (Feb. 26, 2013) (unpublished) (granting unopposed motion requesting briefing and setting briefing schedule).

<sup>25</sup> 10 C.F.R. § 2.341(f)(1). We revised Part 2 of our rules of practice last year, including section 2.341(f)(1). Prior to the rule revision, section 2.341(f)(1) required that the referred ruling raise a “significant and novel legal or policy issue” and necessitate “resolution . . . to materially advance the orderly disposition of the proceeding.” Amendments to Adjudicatory Process Rules and Related Requirements, 77 Fed. Reg. 46,562, 46,576 (Aug. 3, 2012). *See also* Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-12-13, 75 NRC 681, 686 (2012).

<sup>26</sup> For example, the provision in section 51.53(c)(3)(ii)(L) could come into play in a proceeding on an application for a second license renewal term under 10 C.F.R. § 54.31(d), or for the renewal of a license issued under 10 C.F.R. Part 52. Staff Answer at 35. *See infra* note 83 and accompanying text.

<sup>27</sup> Compare 10 C.F.R. § 2.335(b), with *id.* § 2.335(a).

. . . [it] was adopted.”<sup>28</sup> The waiver petitioner must include an affidavit that states “with particularity” the special circumstances that justify waiver of the rule.<sup>29</sup>

Our waiver standard is stringent by design. The NRC has discretion to transact its business broadly, through rulemaking, or case-by-case, through adjudication.<sup>30</sup> When we engage in rulemaking, we are “carving out”<sup>31</sup> issues from adjudication for generic resolution.<sup>32</sup> Therefore, to challenge the generic application of a rule, a petitioner seeking waiver must show that there is something extraordinary about the subject matter of the proceeding such that the rule should not apply.<sup>33</sup>

The waiver standard in section 2.335(b) has remained virtually unchanged since its codification in 1972.<sup>34</sup> Since that time, our case law has given meaning to the “special circumstances” requirement.<sup>35</sup> In 2005, in the *Millstone* license renewal proceeding, we compiled the waiver case law to reflect the four-part test that we have long used.<sup>36</sup> To set aside a Commission rule or regulation in an adjudicatory proceeding, a petitioner must demonstrate that:

- (i) the rule’s strict application would not serve the purposes for which it was adopted;
- (ii) special circumstances exist that were not considered, either explicitly or

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<sup>28</sup> *Id.* § 2.335(b).

<sup>29</sup> *Id.*

<sup>30</sup> See *Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 101 (1983).

<sup>31</sup> *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-88-10, 28 NRC 573, 596 (1988).

<sup>32</sup> See Restructuring of Facility License Application Review and Hearing Processes, 37 Fed. Reg. 15,127, 15,129 (July 28, 1972) (Waiver Standard) (creating general prohibition on challenges to NRC rules and regulations with limited exceptions “[i]n view of the expanding opportunities for participation in Commission rulemaking proceedings and increased emphasis on rulemaking proceedings as the appropriate forum for settling basic policy issues”). *Accord Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 NRC 328, 345 (1999); *Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 85 (1974).

<sup>33</sup> See 10 C.F.R. § 2.335(b). See also, e.g., *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-6, 75 NRC 352, 364-65 (2012); *Seabrook*, CLI-88-10, 28 NRC at 596.

<sup>34</sup> See Waiver Standard, 37 Fed. Reg. at 15,136 (adding then-section 2.758 to permit waiver of a Commission rule or regulation in special circumstances); Changes to Adjudicatory Process, 69 Fed. Reg. 2182, 2224 (Jan. 14, 2004) (Part 2 Amendments) (moving section 2.758 to section 2.335 without substantive change).

<sup>35</sup> See, e.g., *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-89-20, 30 NRC 231, 235 (1989); *Seabrook*, CLI-88-10, 28 NRC at 596-97; *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-80-16, 11 NRC 674, 675 (1980).

<sup>36</sup> See *Millstone*, CLI-05-24, 62 NRC at 559-60. We issued *Millstone* over a year after a major restructuring of our 10 C.F.R. Part 2 rules of practice, thus demonstrating the continued applicability of our waiver case law. See Part 2 Amendments, 69 Fed. Reg. at 2182.

- by necessary implication, in the rulemaking proceeding leading to the rule sought to be waived;
- (iii) those circumstances are unique to the facility rather than common to a large class of facilities; and
  - (iv) waiver of the regulation is necessary to reach a significant safety problem.<sup>37</sup>

All four *Millstone* factors must be met to justify a rule waiver.<sup>38</sup> The waiver petitioner faces a substantial burden,<sup>39</sup> but not an impossible one.

The *Millstone* factors are derived from the language and purpose of section 2.335. The first two factors, as the Board observed, closely track the plain language of section 2.335(b).<sup>40</sup> The second two factors interpret section 2.335(b) in accordance with the provision's underlying purpose.

A showing of “uniqueness,” the third *Millstone* factor, is necessary to justify our setting aside that regulation for the purposes of a specific proceeding.<sup>41</sup> This reflects our view that, in general, challenges to regulations are best evaluated through generic means.<sup>42</sup> Only where a particular challenge to a regulation rests on issues that are legitimately unique to the proceeding and do not imply broader concerns about the rule’s general viability or appropriateness would it make sense to resolve the matter through site-specific adjudication. To be sure, if an issue were “common to a large class of facilities,” then it would be appropriate for us to address the issue through rulemaking. And in view of the fact that we will not set aside a duly-promulgated regulation lightly, the fourth *Millstone* factor requires a showing that the requested waiver is necessary to address an issue of some significance. The rationale that we provided over 20 years ago holds true today: our “agenda is crowded with significant regulatory matters . . . . It would

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<sup>37</sup> *Millstone*, CLI-05-24, 62 NRC at 559-60.

<sup>38</sup> See *id.* at 560.

<sup>39</sup> Cf. *Long Island Lighting Co.* (Shoreham Nuclear Power Station), CLI-85-1, 21 NRC 275, 280 (1985) (Separate Views of Commissioner Asselstine).

<sup>40</sup> LBP-13-1, 77 NRC at 64. See 10 C.F.R. § 2.335(b) (“The sole ground for petition of waiver or exception is that special circumstances with respect to the subject matter of the particular proceeding are such that the application of the rule or regulation (or a provision of it) would not serve the purposes for which the rule or regulation was adopted.”).

<sup>41</sup> See *Seabrook*, CLI-88-10, 28 NRC at 597-98.

<sup>42</sup> If a petitioner’s challenge to an agency rule or regulation relates to an issue of broader significance, then filing a petition for rulemaking under 10 C.F.R. § 2.802 is the better approach. See 10 C.F.R. § 2.802(a) (“Any interested person may petition the Commission to issue, amend or rescind any regulation.”). See also Waiver Standard, 37 Fed. Reg. at 15,129; *Pilgrim*, CLI-12-6, 75 NRC at 364-65; *Vermont Yankee/Pilgrim*, CLI-07-3, 65 NRC at 20-21.

not be consistent with [our] statutorily mandated responsibilities to spend time and resources on matters that are of no substantive regulatory significance.”<sup>43</sup>

The underlying issue in *Millstone* related to safety, as did the issue in the *Seabrook* proceeding referenced therein.<sup>44</sup> Since our decision in *Millstone*, we have not stated expressly whether “significance” would apply to an environmental question, but we have implied in other cases, including this one, that a waiver could be obtained for an environmental contention as well.<sup>45</sup> We clarify now that the fourth *Millstone* factor also may apply to a significant environmental issue.

#### A. The Referred Ruling

Here, presented with the perceived “impossibility” of finding a *prima facie* case for waiver, the Board referred to us the Board’s denial of NRDC’s waiver petition, asking us to explain the interplay between 10 C.F.R. § 51.53(c)(3)(ii)(L) and 10 C.F.R. § 2.335(b).<sup>46</sup> The Board focused on the language of section 51.53(c)(3)(ii)(L) and determined that the purpose of the provision is to exempt license renewal applicants from considering SAMAs if they have been considered already.<sup>47</sup> The source of the Board’s confusion is its notion of the purpose of the exception in section 51.53(c)(3)(ii)(L).<sup>48</sup> Exempting certain applicants from providing a SAMA analysis at the license renewal stage is certainly the intended effect of the rule, but the rule’s underlying purpose is more complex than that. Rather than assuming that a rule’s purpose is simply to achieve its stated effect, one must “look further.”<sup>49</sup>

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<sup>43</sup> *Seabrook*, CLI-88-10, 28 NRC at 597.

<sup>44</sup> See *Millstone*, CLI-05-24, 62 NRC at 555 (emergency planning); *Seabrook*, CLI-88-10, 28 NRC at 600 (financial qualifications).

<sup>45</sup> See, e.g., CLI-12-19, 76 NRC at 388; *Pilgrim*, CLI-12-6, 75 NRC at 365. Although we need not reach the fourth *Millstone* factor today (as discussed *infra*), we provide clarification on this point to reinforce that waiver of a rule pertaining to the agency’s environmental responsibilities is possible.

<sup>46</sup> LBP-13-1, 77 NRC at 69.

<sup>47</sup> *Id.* at 66.

<sup>48</sup> *See id.* at 69.

<sup>49</sup> *Seabrook*, CLI-88-10, 28 NRC at 599. The *Seabrook* case is instructive. In *Seabrook*, we recognized that a superficial reading of the rule sought to be waived — there, a rule that exempted electric utilities from a financial qualifications review at the operating license stage — would lead to a waiver “impossibility” result. *See id.* We explained that “[t]he purpose of the . . . rule sought to be waived is elimination of case-by-case financial qualifications reviews. If we go no further than the . . . rule, no waiver could ever be granted because any waiver, by its nature, would defeat rather than advance the rule’s purpose.” *Id.* (emphasis omitted). Recognizing that waivers were “clearly contemplated,” we reasoned that we must look further than the rule language, by examining “the underlying purpose of the requirement that there be a financial qualifications review.” *Id.* at 599-600 (emphasis omitted).

Like all of our environmental regulations in 10 C.F.R. Part 51, section 51.53(c)(3)(ii)(L) is aimed at satisfying the NRC’s obligations under the National Environmental Policy Act (NEPA).<sup>50</sup> NEPA requires the NRC to prepare a “detailed statement,” i.e., an environmental impact statement (EIS), discussing the environmental impacts, alternatives, and mitigation measures for any “major Federal action[ ] significantly affecting the quality of the human environment.”<sup>51</sup> To assist us in the preparation of a supplemental EIS, we require license renewal applicants to prepare an environmental report.<sup>52</sup> Among other Part 51 provisions, section 51.53(c)(3)(ii) describes the types of information that an environmental report must contain.<sup>53</sup> Section 51.53(c)(3)(ii)(L), in particular, requires that an environmental report include a discussion of SAMAs if the NRC has not considered them previously for the applicant’s plant.<sup>54</sup> As we explained in the Statements of Consideration adopting section 51.53(c)(3)(ii)(L), we did not require license renewal applicants for whom SAMAs were considered previously to provide a supplemental SAMA analysis because we determined that one SAMA analysis would uncover most cost-beneficial measures to mitigate both the risk and the effects of severe accidents, thus satisfying our obligations under NEPA.<sup>55</sup> Putting all of this together, the purpose of the supplemental-SAMA-analysis exception in section 51.53(c)(3)(ii)(L), then, is to reflect our view that one SAMA analysis, as a general matter, satisfies our NEPA obligation to consider measures to mitigate both the risk and the environmental impacts of severe accidents.

That said, even at that time, we did not foreclose the possibility that cost-beneficial mitigation measures might be identified in future license-application reviews.<sup>56</sup> Indeed, we acknowledged that we are required under NEPA to consider new and significant information in our environmental analyses.<sup>57</sup> Therefore, when promulgating the final Part 51 rule, we included section 51.53(c)(3)(iv), which requires a license renewal applicant to identify in its environmental report any “new and significant information of which the applicant is aware” to assist in the preparation of our own new-and-significant-information analysis.<sup>58</sup>

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<sup>50</sup> See 10 C.F.R. § 51.10.

<sup>51</sup> NEPA § 102(2)(C), 42 U.S.C. § 4332(2)(C).

<sup>52</sup> See 10 C.F.R. §§ 51.41, 51.45(a), 51.95(c).

<sup>53</sup> *Id.* § 51.53(c)(3)(ii). See generally *id.* §§ 51.45(a), 51.53.

<sup>54</sup> *Id.* § 51.53(c)(3)(ii)(L).

<sup>55</sup> See Final Rule: “Environmental Review for Renewal of Nuclear Power Plant Operating Licenses,” 61 Fed. Reg. 28,467, 28,481 (June 5, 1996) (Part 51 Amendments) (“The Commission believes it unlikely that any site-specific consideration of [SAMAs] for license renewal will identify major plant design changes or modifications that will prove to be cost-beneficial for reducing severe accident frequency or consequences.”).

<sup>56</sup> See *id.* (noting possible cost-beneficial “procedural and programmatic fixes”).

<sup>57</sup> *Id.* at 28,468. See *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 373-74 (1989).

<sup>58</sup> See 10 C.F.R. § 51.95(c)(4); Part 51 Amendments, 61 Fed. Reg. at 28,468, 28,488.

”New and significant information” related to SAMAs could undermine the purpose of the exception in section 51.53(c)(3)(ii)(L). If new and significant information is available, then the original SAMA analysis may be inadequate to satisfy NEPA at the license renewal stage, and may require supplementation.<sup>59</sup> Our rules provide a mechanism for supplementing an original NEPA analysis.<sup>60</sup> But our rules do not guarantee a hearing;<sup>61</sup> nor is a hearing necessary to satisfy our NEPA obligations.<sup>62</sup>

As we explained in CLI-12-19, if a petitioner wishes to litigate the adequacy of a previously conducted SAMA analysis in a license renewal adjudication, a waiver of section 51.53(c)(3)(ii)(L) would be required. The environmental analysis of severe accidents is designated as a “Category 2” site-specific issue for license renewal, and therefore the SAMA analysis normally is subject to challenge in a license renewal adjudicatory proceeding.<sup>63</sup> Thus, as a general matter, a petitioner may raise a SAMA-related contention in a license renewal adjudication if it satisfies our general contention admissibility criteria in section 2.309(f)(1).<sup>64</sup> In CLI-12-19, however, we explained that the exception in section 51.53(c)(3)(ii)(L) operates as the “functional equivalent” of a Category 1 designation “[f]or Limerick and similarly-situated plants for which SAMAs were already considered in an Environmental Impact Statement or Environmental Assessment.”<sup>65</sup> For Limerick and certain other plants, “the SAMA issue has been resolved by rule,” which means

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<sup>59</sup> See *Marsh*, 490 U.S. at 374 (“If there remains ‘major Federal actio[n]’ to occur, and if the new information is sufficient to show that the remaining action will ‘affec[t] the quality of the human environment’ in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared.” (alterations in original)). As we stated earlier in this case, “[w]e would expect that, if the Staff had in hand new information that could render invalid the original site-specific analysis, then such information should be identified and evaluated by the Staff for its significance, consistent with our NEPA requirements.” CLI-12-19, 76 NRC at 386-87 n.54.

<sup>60</sup> See, e.g., 10 C.F.R. §§ 51.73, 51.95(c)(3), (c)(4).

<sup>61</sup> See, e.g., *id.* §§ 2.309(f)(1), 2.335(b).

<sup>62</sup> See *Blue Ridge Environmental Defense League v. NRC*, 716 F.3d 183, 196 (D.C. Cir. 2013) (deferring to NRC’s decision not to admit petitioners’ NEPA contentions for hearing where NRC found the contentions did not satisfy 10 C.F.R. Part 2 contention admissibility requirements). See also *Massachusetts v. NRC*, 708 F.3d 63, 78 (1st Cir. 2013); *Vermont Yankee/Pilgrim*, CLI-07-3, 65 NRC at 22.

<sup>63</sup> See 10 C.F.R. § 51.53(c)(3)(ii)(L); 10 C.F.R. Part 51, Subpart A, App. B; CLI-12-19, 76 NRC at 386. See, e.g., *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39 (2012).

<sup>64</sup> See, e.g., *FirstEnergy Nuclear Operating Co.* (Davis-Besse Nuclear Power Station, Unit 1), CLI-12-8, 75 NRC 393, 406-18 (2012); *NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 322-37 (2012).

<sup>65</sup> CLI-12-19, 76 NRC at 386.

that the issue has been carved out from adjudication.<sup>66</sup> Consequently, to litigate a SAMA-related contention in this, as well as other adjudicatory proceedings where the SAMA-analysis exception applies, a petitioner must obtain a waiver by satisfying the requirements in section 2.335(b), in addition to satisfying the contention admissibility criteria in section 2.309(f)(1).<sup>67</sup> Alternatively, a petitioner may submit to the Staff any information that it believes to be new and significant by participating in our parallel NEPA process. Among other things, the Staff provides an opportunity for public comment on the draft supplemental EIS.<sup>68</sup>

The operation of the SAMA-analysis exception here is analogous to the Board's example of the waiver process relative to bird collisions with cooling towers,<sup>69</sup> which is analyzed in the license renewal Generic Environmental Impact Statement (GEIS) and designated as a "Category 1" issue.<sup>70</sup> As the Board observed, we determined that bird collisions "have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term."<sup>71</sup> Because this issue has been designated Category 1, it reflects the NRC's expectation that our NEPA obligations have been satisfied with reference

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<sup>66</sup> *Id.* License renewal applicants whose facilities qualify for the SAMA-analysis exception are exempt from addressing severe accident mitigation in their environmental reports, just as they would be exempt from addressing Category 1 issues. *Compare* 10 C.F.R. § 51.53(c)(3)(i), *with id.* § 51.53(c)(3)(ii)(L).

<sup>67</sup> CLI-12-19, 76 NRC at 386.

<sup>68</sup> See 10 C.F.R. §§ 51.73, 51.74. On April 30, 2013, the Staff published the Limerick draft supplemental EIS for public comment. "Generic Environmental Impact Statement for License Renewal of Nuclear Power Plants Regarding Limerick Generating Station, Units 1 and 2" (Draft Report for Comment), NUREG-1437, Supplement 49 (Apr. 30, 2013) (ADAMS Accession No. ML13120A078) (Limerick Draft SEIS). Thereafter, NRDC refiled all four of its original contentions, as well as its pending waste confidence contention, *see supra* note 3, to apply them to the draft supplemental EIS, and to preserve its "rights to appeal either by a timely motion for reconsideration or to the Commission or an appellate court." Resubmitted Contentions at 2. In addition, NRDC filed comments on the draft supplemental EIS. *See* Fettus, Geoffrey H., et al., Natural Resources Defense Council, Letter to Cindy Bladey, NRC (June 27, 2013) (ADAMS Accession No. ML13189A129). The Board tolled the time for NRDC to resubmit the contentions associated with its waiver request until we issued a decision addressing the Board's referred ruling in LBP-13-1, but denied NRDC's request to resubmit its remaining contentions. *See* Memorandum and Order (Ruling on Resubmission of Contentions) (July 12, 2013), at 1 (unpublished); Board Clarification Order at 1-2. (The Board continues to hold the waste confidence contention in abeyance. *See supra* note 3.) Our decision today renders moot the need to toll the deadline for resubmitting the contentions associated with NRDC's waiver petition.

<sup>69</sup> *See* LBP-13-1, 77 NRC at 67.

<sup>70</sup> *See* GEIS at 4-45 to 4-48; GEIS Rev. 1, at 4-70 to 4-74.

<sup>71</sup> LBP-13-1, 77 NRC at 67 (quoting 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1)). *See also* GEIS Revisions, 78 Fed. Reg. at 37,320 ("Bird collisions with cooling towers and other plant structures and transmission lines occur at rates that are unlikely to affect local or migratory populations and the rates are not expected to change.").

to our previously conducted environmental analysis in the GEIS.<sup>72</sup> And because it is a Category 1 issue, a license renewal applicant need not address bird collisions in its environmental report unless it is aware of relevant new and significant information.<sup>73</sup>

Continuing with the Board's example, if new and significant information showed that "changes in the migratory habits of a certain bird . . . led to a large number of collisions with the cooling towers at a specific plant," then "a petitioner might well be able to satisfy . . . [our waiver criteria] and, therefore, challenge [an] applicant's lack of consideration of bird collisions with cooling towers" in a license renewal adjudicatory proceeding.<sup>74</sup> In other words, the petitioner must show that new and significant information, unique to a particular plant, exists with regard to bird collisions, such that the Category 1 finding in 10 C.F.R. Part 51, Subpart A, Appendix B should be waived to litigate the issue in a site-specific proceeding. Likewise, the focus in this case is whether there is new and significant information, unique to Limerick, pertaining to the 1989 SAMDA analysis for Limerick's original operating licenses, such that the exception in section 51.53(c)(3)(ii)(L) should be waived to litigate NRDC's claims in this proceeding.<sup>75</sup>

## B. NRDC's Waiver Petition

With this framework in mind, we turn to NRDC's waiver petition. As discussed above, NRDC raised three challenges to Exelon's Environmental Report, claiming that Exelon (and, ultimately, the NRC in the supplemental EIS)<sup>76</sup> must: (1) consider potential new SAMAs that have been considered for other Mark II boiling water reactors; (2) use economic cost information specific to Limerick, rather than Three Mile Island; and (3) use "modern techniques for assessing whether the newly considered [SAMAs] are cost-beneficial."<sup>77</sup>

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<sup>72</sup> See GEIS at 1-7 to 1-11, 4-45 to 4-48; GEIS Rev. 1, at 1-16 to 1-19, 4-70 to 4-74.

<sup>73</sup> See 10 C.F.R. §§ 51.53(c)(3)(i), 51.53(c)(3)(iv). But even then, a waiver would be necessary to litigate the issue of potentially new and significant information pertaining to bird collisions in an adjudicatory proceeding. *See Vermont Yankee/Pilgrim*, CLI-07-3, 65 NRC at 20-21.

<sup>74</sup> LBP-13-1, 77 NRC at 67.

<sup>75</sup> See CLI-12-19, 76 NRC at 386-87. *See generally* 1989 SAMDA Analysis.

<sup>76</sup> See 10 C.F.R. § 2.309(f)(2) ("On issues arising under the National Environmental Policy Act, participants shall file contentions based on the applicant's environmental report.").

<sup>77</sup> Waiver Petition at 3 & n.3. *See also* Fettus Declaration; Weaver Declaration. Exelon asserts that the Weaver Declaration is deficient because it is a revised version of the declaration that NRDC submitted with its hearing request that is signed only by Dr. Weaver, and therefore apparently lacks the approval of two of its original signatories. *See* Exelon Answer at 43. We need not address that issue. As discussed below, viewing NRDC's waiver petition and supporting documentation in the light most favorable to NRDC, we find that NRDC has not shown that a waiver is appropriate here.

Exelon and the Staff argued that NRDC's waiver petition failed to meet any of the four *Millstone* factors.<sup>78</sup> Based on our review of NRDC's petition, we find that a waiver is not warranted here. We agree with Exelon and the Staff that NRDC has not shown that the issues it raises are unique to Limerick.<sup>79</sup>

NRDC's witnesses, Dr. Weaver and Mr. Fettus, claimed that Limerick is unique because it will be the only boiling water reactor not to update its SAMA analysis with the potentially new and significant information that NRDC identifies.<sup>80</sup> But at bottom, NRDC's challenge to Exelon's Environmental Report amounts to a general claim that could apply to any license renewal applicant for whom SAMAs already were considered. Due to the nature of the rule, 20 or more years may pass between an original SAMA analysis and the submission of a license renewal application for most, if not all applicants that qualify for the SAMA-analysis exception in section 51.53(c)(3)(ii)(L).<sup>81</sup> For example, if the licensees for Comanche Peak Units 1 and 2, and Watts Bar Unit 1 — whose plants also qualify for the SAMA-analysis exception — apply to renew their operating licenses, they may face the same criticism: essentially, that the passage of time between original licensing and renewal has rendered their SAMA analysis out-of-date.<sup>82</sup> Similarly, plants for which a SAMA analysis was conducted for the first time under section 51.53(c)(3)(ii)(L) may face this general criticism upon application for a subsequent renewal term.<sup>83</sup> As the Staff points

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<sup>78</sup> Exelon Answer at 3-4; Staff Answer at 1.

<sup>79</sup> Because NRDC's claims fail to satisfy the "uniqueness" factor, we need not, and do not, reach the other *Millstone* factors in today's decision.

<sup>80</sup> See Fettus Declaration ¶ 4; Weaver Declaration ¶ 9.

<sup>81</sup> In other words, this time frame is inherent in our regulatory scheme, which provides for a 40-year license term, with the possibility of license renewal for an additional 20-year period. *See, e.g.*, 10 C.F.R. §§ 2.109(b), 50.51(a), 54.17(c). The earliest a license renewal application may be submitted is 20 years before the expiration date of the operating license in effect. *Id.* § 54.17(c).

<sup>82</sup> See Part 51 Amendments, 61 Fed. Reg. at 28,481 ("NRC staff considerations of [SAMAs] have already been completed and included in an EIS or supplemental EIS for Limerick, Comanche Peak, and Watts Bar. Therefore, [SAMAs] need not be reconsidered for these plants for license renewal."). Although Comanche Peak Units 1 and 2 and Watts Bar Unit 1 are not boiling water reactors, additional SAMAs have been considered for other license renewal applications since they received their operating licenses. In addition, Comanche Peak and Watts Bar received their operating licenses prior to the release of the MACCS2 code. *See* Staff Answer at 29-30; Exelon Answer at 35. As we explained in the Statements of Consideration regarding section 51.53(c)(3)(ii)(L), we did not mandate a specific approach to SAMA analyses; instead, we stated that we would review "each severe accident mitigation consideration provided by a license renewal applicant on its merits and determine whether it constitutes a reasonable consideration of [SAMAs]." Part 51 Amendments, 61 Fed. Reg. at 28,481-82.

<sup>83</sup> See 10 C.F.R. § 54.31(d). This also could be the case for new plants licensed under 10 C.F.R. Part 52. *See, e.g.*, South Carolina Electric & Gas Co. (Virgil C. Summer Nuclear Station, Units 2 and 3), *(Continued)*

out, waiver of the provision in section 51.53(c)(3)(ii)(L) based on NRDC’s proffered new information alone would create an exception to litigate SAMAs in the *Limerick* proceeding that would “necessarily swallow the rule in [section] 51.53(c)(3)(ii)(L).”<sup>84</sup> Accordingly, “[t]he rulemaking process, as opposed to a site-specific licensing proceeding, is the appropriate venue for such a far-reaching challenge.”<sup>85</sup>

That is not to say that a challenge based on new and significant information cannot overcome the “uniqueness” factor of our waiver standard. Here, however, NRDC offers little to show how the information it provides sets Limerick apart from other plants undergoing license renewal whose previous SAMA analyses purportedly also would be in need of updating. For example, some of NRDC’s proposed SAMAs could be used for any boiling water reactor, not just those with Mark II containments.<sup>86</sup> And NRDC’s argument that a new SAMA analysis should be performed because a newer methodology is available could apply to two other plants now (Comanche Peak and Watts Bar),<sup>87</sup> and presumably to other plants in the future whenever further developments occur regarding other methods of SAMA analysis.

Additionally, with regard to economic cost, NRDC provides data that is specific to Limerick and the surrounding area, but fails to make a sufficient connection between this data and the 1989 SAMDA analysis for Limerick.<sup>88</sup> Instead, Dr. Weaver concludes, without support, that “[n]ew information pertaining to economic risk could plausibly cause materially different results in the assessment of impacts of an accident at Limerick, and materially different cost-benefit results in a new SAMA analysis for Limerick.”<sup>89</sup> Similarly, Dr. Weaver asserts, without more, that use of the MACCS2 code or similar methodology would be “specific” to Limerick, and could show that additional mitigation alternatives are cost-beneficial.<sup>90</sup> In other words, NRDC offers new information, but makes no attempt, other than concluding that a change in the SAMA analysis is “plausible,” to discuss its potential significance to Limerick.<sup>91</sup> To litigate SAMA-related issues in an adjudicatory proceeding, however, we require the demonstration of “a potentially significant deficiency” in the SAMA analysis — “that is, a deficiency

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CLI-12-9, 75 NRC 421 (2012); *Southern Nuclear Operating Co.* (Vogtle Electric Generating Plant, Units 3 and 4), CLI-12-2, 75 NRC 63 (2012).

<sup>84</sup> Staff Answer at 35. *See also id.* at 27.

<sup>85</sup> *Id.* at 35.

<sup>86</sup> *See* Exelon Answer at 34; Exelon Affidavit ¶ 31, tbl. A.

<sup>87</sup> *See* Exelon Answer at 35.

<sup>88</sup> *See* Weaver Declaration ¶¶ 14-24.

<sup>89</sup> *Id.* ¶ 17.

<sup>90</sup> *Id.* ¶¶ 4, 9, 13.

<sup>91</sup> *See id.* ¶ 17.

that credibly could render the SAMA analysis unreasonable under NEPA standards.”<sup>92</sup> Otherwise, “[i]t always will be possible to conceive of yet another input or methodology that could have been used in the SAMA computer modeling, and many different inputs and approaches may all be reasonable choices.”<sup>93</sup> Given that similar updated information could be used for other plants that qualify for the SAMA-analysis exception, there is nothing unique about the information that NRDC identifies to justify waiving the rule for this particular adjudicatory proceeding.

We therefore find that NRDC has not shown that a waiver of section 51.53(c)(3)(ii)(L) is appropriate here. Fundamentally, NRDC claims that the SAMA analysis must be redone due to the passage of time between initial licensing and Exelon’s submittal of its license renewal application. If our waiver standard is to operate as intended, we decline to set aside the rule based merely on a claim of new and significant information, without the support necessary to show that it is unique to Limerick.<sup>94</sup> For these reasons, we deny NRDC’s waiver request.

Nonetheless, we recognize the NRC’s continuing duty to take a “hard look” at new and significant information for each “major federal action” to be taken.<sup>95</sup> The issues that NRDC raises are not appropriate for litigation in a site-specific proceeding due to NRDC’s failure to demonstrate the need for a rule waiver. We find, however, that NRDC has identified information that bears consideration in our environmental review of Exelon’s application outside of the adjudicatory process.<sup>96</sup> Therefore, we refer NRDC’s waiver petition to the Staff as additional comments<sup>97</sup> on the Limerick draft supplemental EIS for the Staff’s consideration

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<sup>92</sup> *Pilgrim*, CLI-12-1, 75 NRC at 57 (emphasis omitted).

<sup>93</sup> *Id. See also Seabrook*, CLI-12-5, 75 NRC at 323 (“[T]he proper question is not whether there are plausible alternative choices for use in the analysis, but whether the analysis that was done is reasonable under NEPA. We have long held that contentions admitted for litigation must point to a deficiency in the application, and not merely ‘suggestions’ of other ways an analysis could have been done, or other details that could have been included.”).

<sup>94</sup> Cf. *Vermont Yankee/Pilgrim*, CLI-07-3, 65 NRC at 21 (“Adjudicating Category 1 issues site by site based merely on a claim of ‘new and significant information,’ would defeat the purpose of resolving generic issues in a GEIS.”).

<sup>95</sup> *See Marsh*, 490 U.S. at 374.

<sup>96</sup> We disagree with NRDC’s assertion, *see* Waiver Petition at 15, that obtaining a waiver and litigating a previously considered environmental issue is the only way to consider new and potentially significant information regarding that issue. *See* CLI-12-19, 76 NRC at 387 (noting NRDC’s option to participate outside of the adjudication by submitting comments on the draft supplemental EIS); Part 51 Amendments, 61 Fed. Reg. at 28,470 (noting that the NRC will consider all comments on the draft supplemental EIS “regardless of whether the comment is directed to impacts in Category 1 or 2”). *Accord Massachusetts*, 708 F.3d at 74.

<sup>97</sup> *See supra* note 68.

and response.<sup>98</sup> We expect that the Staff will incorporate any new SAMA-related information that it finds to be significant in the final supplemental EIS.<sup>99</sup>

### III. CONCLUSION

For the reasons set forth above, we *review* the Board's referred ruling, and *find* that the Board erred in interpreting the purpose of the SAMA-analysis exception in 10 C.F.R. § 51.53(c)(3)(ii)(L). We *affirm* the Board's denial of NRDC's waiver petition because NRDC has not shown that the issues it seeks to litigate are unique to Limerick and thereby justify waiver of the rule to permit litigation in this adjudicatory proceeding. Without a waiver, NRDC's SAMA-related contentions impermissibly challenge section 51.53(c)(3)(ii)(L). Nevertheless, we *direct* the Staff to review the significance of any new SAMA-related information in its environmental review of Exelon's license renewal application, including the information presented in NRDC's waiver petition, and to discuss its review in the final supplemental EIS.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 31st day of October 2013.

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<sup>98</sup> Cf. *Tennessee Valley Authority* (Watts Bar Nuclear Plant, Unit 2), CLI-10-29, 72 NRC 556, 563 (2010) (directing the Staff to consider new information regarding need for power and alternative sources of energy).

<sup>99</sup> See *Marsh*, 490 U.S. at 374; *Warm Springs Dam Task Force v. Gribble*, 621 F.2d 1017, 1024 (9th Cir. 1980). See also *Watts Bar*, CLI-10-29, 72 NRC at 563; Part 51 Amendments, 61 Fed. Reg. at 28,470. In the Limerick draft supplemental EIS, the Staff already has considered some new information beyond what Exelon included in its Environmental Report, including whether to incorporate potentially cost-beneficial SAMAs identified at other plants, as well as the practicality of using state-of-the-art SAMA methodology. See Limerick Draft SEIS at 5-7, 5-11 to 5-13.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Allison M. Macfarlane**, Chairman  
**Kristine L. Svinicki**  
**George Apostolakis**  
**William D. Magwood, IV**  
**William C. Ostendorff**

**In the Matter of**

**Docket No. 63-001**

**U.S. DEPARTMENT OF ENERGY**  
**(High-Level Waste Repository)**

**November 18, 2013**

**INHERENT SUPERVISORY AUTHORITY**

The Commission may, in its discretion, exercise its inherent supervisory authority over agency proceedings when a matter is not strictly adjudicatory in nature or otherwise does not fit cleanly within the procedures described in our rules of practice. *See, e.g., Shieldalloy Metallurgical Corp.* (Decommissioning of the Newfield, New Jersey Site), CLI-13-6, 78 NRC 155 (2013) (responding to judicial remand); *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-08-23, 68 NRC 461, 476 (2008); *Pacific Gas and Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-02-23, 56 NRC 230, 237 (2002).

**REMAND FROM COURT OF APPEALS**

The U.S. Court of Appeals for the District of Columbia Circuit issued a writ of mandamus directing the NRC to resume the licensing process for the Department of Energy's Yucca Mountain high-level radioactive waste repository construction authorization application. *In re Aiken County*, 725 F.3d 255 (D.C. Cir. 2013), *reh'g en banc denied* (Oct. 28, 2013).

## **APPROPRIATIONS**

The appeals court directed the NRC to expend appropriated funds in completing the license review, but afforded the agency broad discretion in choosing a pragmatic course of action. *City of Los Angeles v. Adams*, 556 F.2d 40, 49-50 (D.C. Cir. 1977) (“If Congress does not appropriate enough money to meet the needs of a class of beneficiaries prescribed by Congress, and if Congress is silent on how to handle this predicament, the law sensibly allows the administering agency to establish reasonable priorities and classifications.”).

## **RULES OF PROCEDURE: DEPARTURES FROM**

The Commission chose to spend its existing appropriation in completing the safety review of the Yucca Mountain license application without resuming the adjudication. This departure from the agency’s rules was considered necessary for the orderly transaction of business and would not prejudice the litigants if and when the adjudication resumes. *See American Farm Lines v. Black Ball Freight Service*, 397 U.S. 532, 539 (1970) (“[E]xcept upon a showing of substantial prejudice to the complaining party,” “[i]t is always within the discretion of a court or an administrative agency to relax or modify its procedural rules adopted for the orderly transaction of business before it when in a given case the ends of justice require it.” (citation and internal quotation marks omitted; bracket in original)); *National Whistleblower Center v. NRC*, 208 F.3d 256, 262 (D.C. Cir. 2002) (“[T]he NRC possesses the authority ‘to change its procedures on a case-by-case basis . . . .’” (citing *City of West Chicago v. NRC*, 701 F.2d 632, 647 (7th Cir. 1983)).

## **MEMORANDUM AND ORDER**

On August 13, 2013, the U.S. Court of Appeals for the District of Columbia Circuit issued a decision granting a writ of mandamus, and directing the NRC to resume the licensing process for the Department of Energy’s Yucca Mountain high-level radioactive waste repository construction authorization application.<sup>1</sup> We issued an order seeking comment from the participants in this adjudication as to how the agency should continue with the licensing process.<sup>2</sup> Today we detail the course of action we have selected.

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<sup>1</sup> See generally *In re Aiken County*, 725 F.3d 255 (D.C. Cir. 2013), *reh’g en banc denied* (Oct. 28, 2013).

<sup>2</sup> Order (Soliciting Views from Participants) (Aug. 30, 2013) (unpublished) (August 30 Order).

As discussed below, we direct the NRC Staff to complete and issue the Safety Evaluation Report (SER) associated with the construction authorization application. The Secretary of the Commission and other appropriate staff also should enter the Licensing Support Network (LSN) documents in the possession of the Secretary into the NRC's official recordkeeping system, the Agencywide Documents Access and Management System (ADAMS), to facilitate the Staff's work on the SER and to prepare for allowing public access to all documents. We further request that the U.S. Department of Energy (DOE) prepare the supplemental environmental impact statement (EIS) that the Staff has determined is needed for purposes of the review of this application under the National Environmental Policy Act (NEPA).

Finally, we continue to hold this adjudication in abeyance and will defer decisions related to LSN reconstitution and case management pending completion of the tasks described above.

## I. BACKGROUND

By letter dated June 8, 2008, DOE submitted an application seeking authorization to construct a geologic repository at Yucca Mountain in Nye County, Nevada.<sup>3</sup> The Staff accepted the application for review<sup>4</sup> and thereafter published a notice of hearing on the application, providing an opportunity to file intervention petitions with respect to the application.<sup>5</sup> The notice of hearing included the Staff's determination to adopt, with further supplementation, DOE's 2002 final environmental impact statement (EIS) and 2008 Repository Supplemental EIS.<sup>6</sup>

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<sup>3</sup> Yucca Mountain; Notice of Receipt and Availability of Application, 73 Fed. Reg. 34,348 (June 17, 2008); Yucca Mountain; Notice of Receipt and Availability of Application; Correction, 73 Fed. Reg. 40,883 (July 16, 2008).

<sup>4</sup> Department of Energy; Notice of Acceptance for Docketing of a License Application for Authority to Construct a Geologic Repository at a Geologic Repository Operations Area at Yucca Mountain, NV, 73 Fed. Reg. 53,284 (Sept. 15, 2008).

<sup>5</sup> In the Matter of U.S. Department of Energy (High Level Waste Repository); Notice of Hearing and Opportunity to Petition for Leave to Intervene on an Application for Authority to Construct a Geologic Repository at a Geologic Repository Operations Area at Yucca Mountain, 73 Fed. Reg. 63,029 (Oct. 22, 2008); CLI-08-25, 68 NRC 497 (2008) (Notice of Hearing).

<sup>6</sup> The Staff concluded that neither the 2002 EIS nor the 2008 EIS adequately addressed the environmental impacts on groundwater, or from surface discharges of groundwater, associated with the proposed action. Notice of Hearing, 73 Fed. Reg. at 63,029. See U.S. Nuclear Regulatory Commission Staff's Adoption Determination Report for the U.S. Department of Energy's Environmental Impact Statements for the Proposed Geologic Repository at Yucca Mountain (Sept. 5, 2008) (ADAMS Accession No. ML082420342) (EIS Adoption Determination Report). See generally 10 C.F.R. § 51.109(a)(1) (directing the Staff's adoption determination to be included in the notice of hearing).

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We received a number of intervention petitions, and litigation commenced pursuant to 10 C.F.R. Part 2, Subpart J, continuing through 2011.<sup>7</sup> As relevant here, in March 2010, DOE filed a motion to withdraw its construction authorization application.<sup>8</sup> The Board denied DOE's motion on June 29, 2010, and found that there was no provision in law allowing DOE to withdraw the application, once filed.<sup>9</sup> During this time period, Congress reduced funding for the NRC's review of the application, with no funds appropriated for fiscal year 2012. In September 2011, we announced that we were "evenly divided on whether to take the affirmative action of overturning or upholding the Board's decision."<sup>10</sup> We directed the Board, in recognition of budgetary limitations, to "complete all necessary and appropriate case management activities, including disposal of all matters currently pending before it."<sup>11</sup> Accordingly, the Board suspended the proceeding.<sup>12</sup>

As noted above, earlier this year the D.C. Circuit granted a request for a writ of mandamus and ordered the NRC to "promptly continue with the legally mandated licensing process" for the Yucca Mountain application, "unless and until Congress authoritatively says otherwise or there are no appropriated funds remaining."<sup>13</sup> Shortly thereafter, we received requests for action from Nye County and the State

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The Staff also adopted DOE's 2008 Rail Alignment EIS and 2008 Rail Corridor Supplemental EIS, neither of which is at issue here.

<sup>7</sup> A list of key documents detailing the history of the proceeding may be found in an appendix to the Board's decision suspending the proceeding, discussed *infra*. See LBP-11-24, 74 NRC 368, 371-79 (2011). See generally 10 C.F.R. Part 2, Subpart J, "Procedures Applicable to Proceedings for the Issuance of Licenses for the Receipt of High-Level Radioactive Waste at a Geologic Repository."

<sup>8</sup> U.S. Department of Energy's Motion to Withdraw (Mar. 3, 2010). Prior to filing its motion, DOE requested, and the Construction Authorization Board granted, an interim suspension of discovery and a stay of the adjudication pending resolution of its motion to withdraw. See Order (Granting Interim Suspension of Discovery) (Feb. 2, 2010) (unpublished); Order (Granting Stay of Proceeding) (Feb. 16, 2010) (unpublished).

<sup>9</sup> LBP-10-11, 71 NRC 609 (2010). In that decision, the Board also granted the intervention petitions of the States of South Carolina and Washington; Aiken County, South Carolina; the Prairie Island Indian Community; and the National Association of Regulatory Utility Commissioners (NARUC). *Id.* at 649.

<sup>10</sup> CLI-11-7, 74 NRC 212, 212 (2011).

<sup>11</sup> *Id.*

<sup>12</sup> See LBP-11-24, 74 NRC at 370.

<sup>13</sup> *Aiken County*, 725 F.3d at 267. Nevada sought rehearing *en banc*, and requested that we "postpone any decision regarding how the licensing process should be resumed" until resolution of its petition for rehearing. State of Nevada's Comments in Response to the Secretary's August 30, 2013 Order (Sept. 30, 2013) at 1 (Nevada Views). Nevada's petition was denied on October 28, 2013; its request is therefore now moot. See note 1, *supra*.

of Nevada.<sup>14</sup> In carrying out the court's order, we sought the participants' "views as to how the agency should continue with the licensing process."<sup>15</sup>

We received views from DOE, the NRC Staff, Nevada (joined by Inyo and Clark Counties, the Timbisha Shoshone Tribe, and the Native Community Action Council), the Nuclear Energy Institute (NEI), Nye County (joined by South Carolina and Washington, Aiken County, and NARUC), the Four Nevada Counties, White Pine County, the Prairie Island Indian Community (PIIC), Lincoln County, and Eureka County.<sup>16</sup> In addition to joining Nevada, the Timbisha

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<sup>14</sup> See Nye County's Motion for Lifting of Suspension of Yucca Mountain Licensing Proceeding, Scheduling of Immediate Case Management Conference, and Issuance of Related Administrative Orders (Aug. 23, 2013) (Nye County Motion), and Points and Authorities in Support of Motion (Aug. 23, 2013) (identical motions filed before the Commission and the Atomic Safety and Licensing Board) (supported by the States of South Carolina and Washington, Aiken County, and NARUC) (Nye County Points and Authorities); State of Nevada Motion for Commission Action Related to a Possible Restart of the Yucca Mountain Licensing Proceeding (Aug. 23, 2013) (supported by Clark and Inyo Counties) (Nevada Motion). Nye County requests that we (1) restart the licensing proceedings; (2) convene a case management conference to revise the schedule and reinstitute discovery; and (3) direct the immediate release of the SER. Nye County Motion at 1. Nevada requests that: (1) the LSN be reconstituted; (2) any required hearings take place in the Las Vegas area; and (3) the restarted adjudication be conducted by Construction Authorization Board 04. Nevada Motion at 3. Each of these issues is addressed in the context of the participants' views, *infra*. The motions are granted in part as discussed herein, and otherwise denied.

<sup>15</sup> August 30 Order at 1. That Order provided for these views to be combined with any answers to the Nye County and Nevada motions. *Id.* In the meantime, the Nuclear Energy Institute filed an answer to the motions, also on August 30. See Nuclear Energy Institute's Answer to Motions Concerning Resumption of Yucca Mountain Licensing Activities (Aug. 30, 2013) (NEI Answer).

<sup>16</sup> See U.S. Department of Energy's Response to the Commission's August 30, 2013 Order (Sept. 30, 2013) (DOE Views); NRC Staff Response to August 30 Commission Order (Sept. 30, 2013) (Staff Views); Nevada Views; Nuclear Energy Institute's Response to Commission's Order Regarding Resumption of Yucca Mountain Licensing Activities (Sept. 30, 2013) (NEI Views); Nye County, Nevada, the States of South Carolina and Washington, Aiken County, South Carolina, and the National Association of Regulatory [Utility] Commissioners Consolidated Response to NRC Order of August 30, 2013 and to Other Parties' Submittals (Sept. 30, 2013) (Nye County Views); Churchill County, Esmeralda County, Lander County and Mineral County ("The Four Nevada Counties") Views as to How the NRC Should Continue the Yucca Mountain Licensing Process (Sept. 30, 2013) (Four Counties Views); White Pine County, Nevada Views Regarding How NRC Should Continue the Yucca Mountain Licensing Process (Sept. 25, 2013) (White Pine County Views); Prairie Island Indian Community's Response to the Commission's August 30, 2013 Order (Sept. 30, 2013) (PIIC Views); Lincoln County, Nevada Views Regarding How NRC Should Continue the Yucca Mountain Licensing Process (Sept. 26, 2013) (Lincoln County Views); Eureka County's Response to NRC Secretary's August 30, 2013 Order (Sept. 30, 2013) (Eureka County Views).

In addition, we received several limited appearance statements. See Treichel, Judy, Nevada Nuclear Waste Task Force, Letter to the Commissioners, "Yucca Mountain licensing database (Licensing Support Network)" (Sept. 6, 2013); Treichel, Judy, Nevada Nuclear Waste Task Force, e-mail to Mary Woollen, Office of the Chairman, "New US Nuclear Waste Technical Review Board Report"

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Shoshone Tribe, through the Timbisha Shoshone Tribal Council, filed a motion seeking other relief.<sup>17</sup>

## II. DISCUSSION

We undertake today's decision as an exercise of our inherent supervisory authority over agency proceedings, as we do when a matter is not strictly adjudicatory in nature or otherwise does not fit cleanly within the procedures described in our rules of practice.<sup>18</sup>

### A. The Participants' Views

We have reviewed the participants' submissions as well as information regarding the projected costs of licensing activities. Common themes emerge from our review: all participants request that we direct the NRC Staff to complete the Safety Evaluation Report associated with the application, although the views as to the appropriate sequencing of SER completion in relation to other activities vary among the participants.<sup>19</sup> The Staff also recommends that the agency complete the

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(Sept. 23, 2013); Hoffman, Donald R., American Nuclear Society, Letter to Chairman Macfarlane (Sept. 30, 2013); Case, John B., JBCase and Associates, Letter to Eliot Brenner, Office of Public Affairs, "Nuclear Regulatory Commission Seeks Input on Resumption of Yucca Licensing Review No. 13-070" (Sept. 19, 2013); Ewing, Early, E-mail to the Secretary of the Commission (Sept. 4, 2013). These statements will be included on the docket of this proceeding. *See generally* 10 C.F.R. § 2.315(a).

<sup>17</sup> Timbisha Shoshone Tribe's Response to NRC Secretary's August 30, 2013 Order and Renewed Motion for Recognition of the Timbisha Shoshone Tribal Council as the Legitimate Representative of the Timbisha Shoshone Tribe (Sept. 30, 2013) (Tribe Views and Renewed Motion). The renewed motion states that the Timbisha Shoshone Tribal Council stands in the shoes of the Joint Timbisha Shoshone Tribal Group, a single entity formed for the purposes of the Tribe's participation in the adjudication. *Id.* at 4. *See generally* Order (Accepting Joint Representation of Timbisha Shoshone Tribe) (Apr. 22, 2009) (unpublished). In today's decision, we refer to the movant as the "Tribal Council."

<sup>18</sup> *See, e.g.*, *Shieldalloy Metallurgical Corp.* (Decommissioning of the Newfield, New Jersey Site), CLI-13-6, 78 NRC 155 (2013) (responding to judicial demand); *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-08-23, 68 NRC 461, 476 (2008); *Pacific Gas and Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-02-23, 56 NRC 230, 237 (2002).

<sup>19</sup> *See, e.g.*, Staff Views at 7, 8-10; Nevada Views at 8 (complete SER in parallel with reconstitution of the LSN); Nye County Points and Authorities at 16-17, and Nye County Views at 1, 3-12 (requesting immediate issuance of the SER "with the Staff safety conclusions intact"); NEI Answer at 2, 4-5; NEI Views at 1-2; PIIC Views at 2 (listing completion and publication of the SER "as the first priority for

*(Continued)*

supplemental EIS.<sup>20</sup> Several participants seek reconstitution of the LSN;<sup>21</sup> others disfavor LSN reconstitution, but request that the LSN document collection be made available in some other format.<sup>22</sup> A number of participants seek resumption of this adjudication and make related requests, including reestablishment of Construction Authorization Board 04, conduct of a conference in the Las Vegas area, resumption of Phase I discovery,<sup>23</sup> and other requests related to case management.<sup>24</sup> In contrast, other participants caution against resumption of the adjudication, expressing doubt as to whether available funds would be sufficient to make meaningful progress.<sup>25</sup> DOE recommends no particular course of action

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the expenditure[ ] of funds"); Four Counties Views at 1-2; White Pine County Views at 3; Lincoln County Views at 3; Eureka County Views at 4-5 (advocating issuance of SER only if sufficient funds are available to conduct a hearing).

<sup>20</sup> Staff Views at 7, 10-11.

<sup>21</sup> Nevada Motion at 3-8 ("Nevada's strong preference is that the LSN be reconstituted as it previously existed — a standalone internet page fully available for public access and search"); Nevada Views at 2, 5-8 (LSN reconstitution in conjunction with SER completion); Eureka County Views at 1, 4, 5 (restoration of the LSN following resumption of the adjudication).

<sup>22</sup> NEI Answer at 6-7; Nye County Points and Authorities at 18; Nye County Views at 19-21; Four Counties Views at 2 (recommending, instead, that "all documents in the proceeding be added to the ADAMS archival system"); White Pine County Views at 3 (encouraging the NRC to "utilize existing document archival systems . . . in lieu of reconstituting the costly and cumbersome [LSN]"), 4; PIIC Views at 2 (seeking to delay reconstitution of the LSN until after a case management conference and completion of the SER, and recommending that the NRC "make all documents filed and archived in the proceeding available on the NRC's ADAMS archival system"); Lincoln County Views at 4 (unnumbered) (recommending placement of documents provided to the NRC "on the NRC's existing ADAMS document archival system").

<sup>23</sup> In view of the Staff's plan to issue the SER serially, the Board planned discovery to occur in phases. So-called "Phase I" discovery comprised (1) all safety and miscellaneous contentions concerning issues relating to either SER Volumes 1 or 3 (regarding general information and review of repository safety after permanent closure, respectively); (2) all NEPA contentions (other than those involving DOE's additional groundwater analysis) relating to SER Volumes 1 or 3; and (3) all "legal issue" contentions relating to SER Volumes 1 or 3. *See CAB Case Management Order # 2* (Sept. 30, 2009) (unpublished) at 3-4 & App. (identifying specific contentions to be addressed in Phase I) (*Case Management Order # 2*); NRC Staff Answer to the CAB's July 21, 2009 Order Concerning Serial Case Management (July 28, 2009) (providing information on the subject matter of each of the five SER volumes) (Staff Answer Concerning Serial Case Management).

<sup>24</sup> Nevada Motion at 8-11; Nevada Views at 8-12, 13 (taking the position that discovery cannot be accomplished without reconstitution of the LSN and completion of the SER); Nye County Points and Authorities at 10, 14-15; Nye County Views at 2-3, 12-16, 21-22; Eureka County Views at 1, 3-4, 5; Four Counties Views at 1; White Pine County Views at 3, 4; PIIC Views at 1, 2; Lincoln County Views at 1-2.

<sup>25</sup> Staff Views at 11-17; NEI Answer at 6, 7. White Pine County seeks consideration of funding issues affecting it and, potentially, other participants. White Pine County Views at 2-3.

but represents that it is “committed to complying as expeditiously as possible with any NRC order, subject to the availability of funds.”<sup>26</sup>

## B. Course of Action for the Licensing Process in the Near Term

As an initial matter, we explain several principles that guide our approach, which we consider to be consistent with the court’s direction in *Aiken County* and with our obligations under the Nuclear Waste Policy Act (NWPA). First, the court directed the agency to “promptly continue” the licensing process, but it did not prescribe any particular task or sequence of tasks. Second, the court recognized that the agency currently has limited funding to continue the licensing process.<sup>27</sup> The court’s decision does not require (or permit) us to expend funds beyond the agency’s existing Nuclear Waste Fund appropriation.<sup>28</sup> The court’s order therefore afforded us broad discretion in choosing a pragmatic course of action to resume the licensing process.<sup>29</sup>

Our decision today is not intended to permanently change the course of this licensing process. Consistent with our rules, before a final decision approving or disapproving a construction authorization application may be reached, not only must the Staff complete its safety and environmental reviews but a formal hearing must be conducted, and our own review of both contested and uncontested issues must take place.<sup>30</sup> Today we plot a course that, in our view, will advance the licensing process in a manner that is constructive and consistent with the court’s decision and the resources available. We take an incremental approach, since the agency cannot engage in all of the licensing activities that we would undertake if fully funded — for example, we cannot at this time complete a formal hearing requiring disposition of nearly 300 contentions. Therefore, we looked to the schedule set forth in 10 C.F.R. Part 2, Subpart J and Appendix D and identified

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<sup>26</sup> DOE Views at 2 (unnumbered).

<sup>27</sup> See *Aiken County*, 725 F.3d at 269 (“No one disputes that \$11 million is wholly insufficient to complete the processing of the application.”) (Garland, C.J., dissenting).

<sup>28</sup> Aiken County squarely presented this argument to the court, but the court did not rule on this basis. See Reply Brief of Petitioners at 21-27, *Aiken County*, 725 F.3d 255 (2013) (No. 11-1271); Final Brief for the Respondents at 43-48, *Aiken County*, 725 F.3d 255 (2013) (No. 11-1271).

<sup>29</sup> See *City of Los Angeles v. Adams*, 556 F.2d 40, 49-50 (D.C. Cir. 1977) (“If Congress does not appropriate enough money to meet the needs of a class of beneficiaries prescribed by Congress, and if Congress is silent on how to handle this predicament, the law sensibly allows the administering agency to establish reasonable priorities and classifications.”). The court cited the Adams case in *Aiken County*, 725 F.3d at 259. The State of Nevada would have us reinstitute all aspects of the licensing process. Nevada Views at 3-5 (asserting that the licensing process mandates both the licensing and adjudicatory tracks). Under *Adams*, we do not agree that such a course of action is required and, as we discuss in the text, we do not find such an approach to constitute a wise use of limited resources.

<sup>30</sup> See 10 C.F.R. §§ 2.101(e)(8), 2.104(a), 2.1023.

activities that represent the next logical steps in the process. As discussed below, we expect that the NRC Staff and DOE can accomplish these tasks with the funds currently available for work associated with the Yucca Mountain repository application. Our decision to defer other activities — in particular, resumption of the adjudication and reconstitution of the LSN — is guided by the fact that the NRC will be unable, at this time, to make meaningful or substantial progress on these fronts. Further, to resume these activities jeopardizes our ability to complete the tasks that we direct today, given the limited funds available.

Importantly, our regulations provide that the next step in the licensing process is completion of the SER.<sup>31</sup> After that, the next substantial task would be completion of discovery in the adjudication.<sup>32</sup> But, discovery cannot be completed — nor can the evidentiary hearing be held — until the SER and all necessary environmental impact statements are completed.<sup>33</sup> We find, then, that logic and prudence dictate completion of these review documents as the next steps in the licensing process. Similarly, in view of funding limitations, we do not today direct reconstitution of the LSN, in either its original form, or in a modified form. We base this determination primarily on the fact that the adjudication will remain suspended. In the absence of adjudicatory activities (particularly discovery), we do not find — and the participants do not make the case — that LSN functionalities are needed now. To be sure, and as discussed further below, public availability of the LSN collection would be a central consideration in the event additional funding is provided and the adjudication goes forward.

While our decision is not intended to call into question the requirements in 10 C.F.R. Part 2, Subpart J, those rules were not developed with the current funding situation in mind. Congress has appropriated no new funds for our review since those appropriated for Fiscal Year 2011, leaving available to us only our remaining carryover funds from previous appropriations. These carryover funds represent only a fraction of the NRC's "normal" annual budget for the Yucca review (i.e., what the agency had been spending per year prior to closing out the proceedings in 2011). Under these circumstances, we consider the amount of funding available not as a means of determining *whether* to proceed on the license application (an inquiry that the mandamus order forecloses), but in determining *how* to proceed (an inquiry that the mandamus order does not address and that prudent fiscal management requires us to consider).<sup>34</sup>

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<sup>31</sup> 10 C.F.R. Part 2, App. D.

<sup>32</sup> Appendix D contemplates the commencement of discovery on "Day 100," continuing through "Day 608," 60 days after completion of the SER.

<sup>33</sup> See generally 10 C.F.R. Part 2, App. D; 10 C.F.R. § 2.1022.

<sup>34</sup> Apart from the question whether Congress will provide future appropriations in future budget years, the amount of funding available to an agency under current appropriations legitimately may influence the agency's plans and priorities for the current budget year.

The agency has in hand approximately \$11 million in unobligated carryover funding appropriated from the Nuclear Waste Fund.<sup>35</sup> DOE represents that, as of August 30, 2013, it “had approximately \$15.4 million in unobligated carryover funds that could be used to support participation in the licensing proceeding,” as well as \$29.5 million in carryover funds currently obligated on existing contracts, of which \$18.1 “is obligated on contracts that are relevant and could be used” to support licensing proceedings, provided they are first deobligated.<sup>36</sup> Bearing these amounts in mind, we direct the Staff to complete the Safety Evaluation Report associated with the construction authorization application. We also request that DOE complete the supplemental EIS needed to address the potential impacts of the construction authorization on groundwater and from surface discharges of groundwater.

### ***1. The NRC Staff Should Complete the SER***

Regarding the SER, the Staff stated that, subject to certain assumptions, SER volumes 2 through 5<sup>37</sup> can be completed and issued concurrently in approximately 12 months after the Staff initiates work.<sup>38</sup> The Staff’s estimate for completion

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<sup>35</sup> Dyer, J.E., Chief Financial Officer, NRC, Letter to the Honorable Rodney Frelinghuysen, Chairman, Subcommittee on Energy and Water Development, Committee on Appropriations, U.S. House of Representatives (Sept. 13, 2013) (ADAMS Accession No. ML13252A237). As noted in that letter, the agency has commenced using these funds to further this licensing process. The agency also has \$2.5 million in obligated, unexpended funds that would become available if contract audit activities are completed and these funds are eligible for subsequent deobligation. *See id.*

<sup>36</sup> DOE Views at 2.

<sup>37</sup> SER Volume 1 was published in August 2010. Letter from Lenehan, Daniel W., Counsel for NRC Staff, to the Administrative Judges (Aug. 23, 2010) (attaching “Safety Evaluation Report Related to Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada,” Vol. 1: General Information (Aug. 2010)). SER Volume 2 concerns the review of repository safety before permanent closure; Volume 3, as noted above, concerns post-closure safety; Volume 4 concerns the Staff’s review of administrative and programmatic requirements; and Volume 5 concerns license specifications and conditions. *See Staff Answer Concerning Serial Case Management.*

<sup>38</sup> Affidavit of Josephine Piccone in Response to August 30 Commission Order (Sept. 30, 2013), appended to Staff Views, ¶3 (Piccone Aff.). This estimate assumes: (1) no unforeseen “technical and process issues”; (2) the project “would be given a high priority so that appropriate technical staff and resources are available”; (3) no additional technical information will be required from DOE; (4) the 12 months includes time to replace and reassemble key technical reviewers, and for those reviewers to acquaint or reacquaint themselves with relevant materials; and (5) the availability of the Center for Nuclear Waste Regulatory Analysis for contractor support. *Id.* The Staff also states that it will need access to DOE’s Licensing Support Network collection, a matter we address *infra*. Staff Views at 17-18; Piccone Aff. ¶3.

of the SER is approximately \$8.3 million.<sup>39</sup> The next significant milestone in the Appendix D schedule is issuance of the SER;<sup>40</sup> to conform to our regulatory scheme to the extent practicable, it makes sense to proceed with the SER as the next step in this licensing process. In addition, completion of the SER volumes is a discrete task that may be completed with existing funds, not a long-term task that would likely require substantial “orderly closure” expenditures (to facilitate orderly resumption at some future date) if Congress does not appropriate new funds before current funds are exhausted. And as the Staff observes, completion of the SER will serve multiple purposes — the Staff’s regulatory conclusions will be preserved and made publicly available, and could facilitate future resolution of contested hearing issues, if additional appropriations are provided and this licensing matter continues.<sup>41</sup> Further, as noted above, all participants support ultimate completion of the SER. For all of these reasons, we find completion of the remaining SER volumes to be the appropriate next step in the licensing process.<sup>42</sup> The Staff should complete the SER using the approach that was under way when work on the SER was suspended — that is, the Staff should work on the completion of all remaining volumes concurrently but issue each SER volume upon completion. Moreover, the release of completed volumes serially will ensure transparency as to the Staff’s activities.

## **2. *The LSN Collection Should Be Made Available in ADAMS***

While the Staff takes no position on how we should address the availability of the LSN, the Staff represents that completion of the SER will require access to “DOE’s LSN collection and any new supplements filed prior to completion of its SER,” both as a resource for the Staff’s review and to ensure that references “in the SER are publicly available prior to publication.”<sup>43</sup>

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<sup>39</sup> The cost of completing and issuing the SER has in the past been estimated at approximately \$6.5 million. But this cost is affected by the length of time the licensing process was suspended. *See* Staff Views at 9 n.28 (citing congressional hearing transcripts).

<sup>40</sup> 10 C.F.R. Part 2, App. D (“Day 548”).

<sup>41</sup> A complete SER also may serve to inform future repository reviews or otherwise support the national repository strategy, irrespective of whether Congress appropriates more funds for our Yucca Mountain review.

<sup>42</sup> Consistent with its stated commitment to comply “as expeditiously as possible with any order,” we expect that DOE will provide, to the best of its ability, any information or support requested by the Staff to facilitate timely completion and issuance of the remaining SER volumes.

<sup>43</sup> Staff Views at 17-18; Piccone Aff. ¶3 (citing “Preparing NUREG-Series Publications,” NUREG-0650, Rev. 2 (Jan. 1999), § 4.2.4.1, at 21 (“Each reference listed in an NRC publication must be publicly available.”) (ADAMS Accession No. ML041050294)).

The LSN was shut down in 2011.<sup>44</sup> DOE's LSN document collection (which comprises 98.8% of the LSN collection), together with the other participants' collections, has been transmitted to the Secretary of the Commission.<sup>45</sup> The Secretary has been storing these materials since that time. To facilitate the Staff's completion of the SER, and to ensure that the documents in the LSN collection currently in the Secretary's possession are treated in accordance with agency records requirements, we direct the Secretary, in conjunction with agency records management staff, to load these documents into nonpublic ADAMS promptly for use by the Staff in completing the SER.<sup>46</sup> This course of action not only facilitates the Staff's task, but also ensures appropriate stewardship of the collection. At this time, not all of these documents will be made publicly available because we are not certain that we will have the funds available to do so, although the Staff will make public any documents used as references in the SER, consistent with NUREG-0650, by the time the SER is issued.<sup>47</sup>

Based upon the Staff's representation, we expect that, during the period in which the LSN collection is being placed in nonpublic ADAMS, there will be a period of some weeks when the Staff will need access to documents in DOE's LSN collection that may be unavailable.<sup>48</sup> During that time, we encourage the Staff to call upon DOE to provide those documents. We take DOE at its word that it will use its unobligated carryover funds to support the licensing process and will make its best efforts to assist the Staff in locating necessary documents from DOE's LSN collection.

### **3. DOE Is Requested to Complete the Supplemental EIS**

As discussed in the 2008 EIS Adoption Determination Report, the Staff concluded that the discussion of certain environmental impacts in the DOE EISs, particularly the potential impacts of the proposal on groundwater and from surface discharges of groundwater, was insufficient and that supplementation was required to ensure adequacy of the EISs.<sup>49</sup> The Report observed that either DOE or

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<sup>44</sup>For a summary of the activities leading up to the LSN shutdown as well as the participants' document preservation efforts, *see generally* CLI-11-13, 74 NRC 635 (2011).

<sup>45</sup>*Id.* at 637-39. The Staff did not transmit its documents to the Secretary, as they already reside in ADAMS. *Id.* at 638.

<sup>46</sup>We understand the cost of this effort to be approximately \$700,000.

<sup>47</sup>We will continue to explore means to make the collection publicly available using the limited funds available to continue the licensing process.

<sup>48</sup>Documents in the collection maintained by the Secretary of the Commission cannot be readily searched or retrieved in their current form.

<sup>49</sup>*See* 2008 EIS Adoption Determination Report § 3.2.1.4.2.

the NRC could develop the supplement.<sup>50</sup> Shortly thereafter, DOE committed to prepare the supplement and provided a timeline for doing so.<sup>51</sup> In 2009, however, DOE informed the Staff that it would not prepare a supplement, but instead provided to the NRC an analysis of postclosure groundwater impacts, together with supporting documents, for the Staff's use in preparing the supplement.<sup>52</sup>

The Staff estimates that the EIS supplement can be prepared and issued by the NRC Staff approximately 12 months after the start of work on the supplement.<sup>53</sup> This 12-month period includes time to create a review team, collect and address public comments, and issue a draft and final supplement.<sup>54</sup> The Staff represents that work on the SER and the EIS supplement could be performed concurrently.<sup>55</sup> Alternately, the supplement could be prepared and issued by DOE and adopted by the NRC (if sufficient).<sup>56</sup>

Here again, we find that completion of the EIS supplement is a well-defined, discrete task that would advance the licensing process and that may be accomplished with available funds.<sup>57</sup> Before an evidentiary hearing in this proceeding could occur, the environmental review must be completed and completion of the EIS supplement is a key component of the environmental review.<sup>58</sup>

We request that DOE complete the EIS supplement, for consideration and potential adoption by the NRC Staff.<sup>59</sup> The Nuclear Waste Policy Act § 114(f)

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<sup>50</sup> *Id.* § 3.2.1.4.2.3.

<sup>51</sup> Boyle, William J., Office of Civilian Radioactive Waste Management, DOE, letter to NRC Document Control Desk, "Notification of Plan for Supplementing the Final Environmental Impact Statement (FEIS)" (Oct. 3, 2008) (ADAMS Accession No. ML082810087).

<sup>52</sup> Boyle, William J., Office of Civilian Radioactive Waste Management, DOE, Letter to NRC Document Control Desk, "Notification of Change of Commitment for Supplementing the Final Environmental Impact Statement" (July 30, 2009) (ADAMS Accession No. ML092150301) (2009 Boyle Letter).

<sup>53</sup> See Piccone Aff. ¶ 4.

<sup>54</sup> Staff Views at 10-11; Piccone Aff. ¶ 4.

<sup>55</sup> Staff Views at 11; Piccone Aff. ¶ 4.

<sup>56</sup> *Id.* The Staff provided no information as to a potential schedule for DOE to develop the supplement.

<sup>57</sup> As with the SER, we expect that preparing the supplemental EIS now, rather than pursuing longer-term and costlier Yucca-review tasks, will limit the risk of another round of "orderly closure" expenses if current funds run out.

<sup>58</sup> A potential ancillary benefit of this approach, as noted by the Staff, is that completion of the EIS supplement would preserve that analysis for use in this or another repository proceeding. See Staff Views at 11.

<sup>59</sup> DOE has stated that it can complete the EIS supplement. See *Implementing the Nuclear Waste Policy Act — Next Steps: Hearing Before the H. Energy and Commerce Subcomm. on Env't and Econ.*, 113th Cong. 76 (Sept. 10, 2013) (statement of Dr. Peter Lyons, Ass't Sec'y for Nuclear Energy) ("[W]e have provided the information to the NRC to do the supplement, but if they wish us to do

(Continued)

directs the NRC to adopt the DOE EIS to “the extent practicable.”<sup>60</sup> As described in the regulations applicable to these proceedings, DOE may be required to supplement its final EIS when there is new information “relevant to environmental concerns and bearing on the proposed action or its impacts.”<sup>61</sup> Our regulations also provide that the presiding officer in the adjudication will determine the extent to which adoption by the NRC of any EIS — that is, DOE’s repository EIS and its supplements — is “practicable,” which in turn will satisfy our NEPA obligations.<sup>62</sup> These regulations recognized that in promulgating the NWPA, Congress intended that the primary responsibility for evaluating environmental impacts rest with DOE.<sup>63</sup> As noted above, DOE already has performed significant analyses in support of the EIS supplement.<sup>64</sup> We therefore look to DOE to take the laboring oar in completing the environmental review.<sup>65</sup>

#### **4. This Adjudication Will Remain Suspended**

As stated above, we decline to resume the contested adjudication at this time. The schedule for these proceedings contemplates that discovery will proceed in parallel with the Staff’s development of the SER, with issuance of the SER by “Day 548.”<sup>66</sup> When the proceeding was suspended in 2011, Phase I discovery had begun, and participants were in the process of scheduling depositions.<sup>67</sup> Our 2011 direction that the proceeding be suspended effectively tolled the Appendix D schedule. Our decision today results in a further deviation from the Appendix D

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it, we would use the information that we provided to them.”) (unofficial transcript) (September 10 House Subcommittee Hearing Transcript). We understand that the NRC could complete an adoption decision at an estimated cost of \$600,000.

<sup>60</sup> NWPA § 114(f)(4), 42 U.S.C. § 10134(f)(4).

<sup>61</sup> 10 C.F.R. § 51.67.

<sup>62</sup> 10 C.F.R. § 51.109(c).

<sup>63</sup> See Final Rule: “NEPA Review Procedures for Geologic Repositories for High-Level Waste,” 54 Fed. Reg. 27,864 (July 3, 1989). In commenting on the proposed rule, DOE acknowledged that it was likewise responsible to supplement its EIS to account for significant new information. *Id.* at 27,867.

<sup>64</sup> See 2009 Boyle Letter.

<sup>65</sup> Consistent with the Staff’s previous practice, we expect the Staff to make public all references listed in the EIS supplement adopted by the NRC, as well as any additional references in the NRC’s adoption report.

<sup>66</sup> See 10 C.F.R. § 2.1026(a) (requiring that, subject to exceptions not relevant here, the Presiding Officer adhere to the schedule set forth in 10 C.F.R. Part 2, Appendix D); Notice of Hearing, 73 Fed. Reg. at 63,032; CLI-08-25, 68 NRC at 504-05 (modifying the Appendix D schedule for this proceeding to revise the milestones up to, and including, the First Prehearing Order).

<sup>67</sup> 10 C.F.R. §§ 2.1018(b)(1), (a)(2), 2.1019. But see Memorandum and Order (Granting Motion for Protective Order) (May 20, 2011) (unpublished) (quashing deposition notices served on DOE by Nevada in view of the “uncertain environment surrounding this proceeding”).

schedule, in that discovery will not occur in parallel with completion of the SER.<sup>68</sup> We observe that the deviation is a temporary modification to our procedural rules designed to maximize progress in the overall licensing process given current funding.<sup>69</sup>

Resuming the adjudication now likely would result in resuspension of the case in the near term without completion of meaningful — or substantial — adjudicatory activities.<sup>70</sup> For example, nearly 300 contentions are subject to Phase I discovery. While several participants advocated resuming the adjudication with a case management conference, none argued that it would be practical to resume the costly process of taking depositions at this time.<sup>71</sup> In view of funding constraints, discovery activities likely would draw to an abrupt halt before significant progress can be made.<sup>72</sup> In addition, the record reflects that some of the less well-funded participants do not have the resources to participate fully in the adjudication at this time.<sup>73</sup>

Because we have decided not to restart the adjudication, we decline to consider the participants' various adjudicatory requests today. Should we lift the suspension in the future, participants will have the opportunity to resubmit requests associated

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<sup>68</sup> See *American Farm Lines v. Black Ball Freight Service*, 397 U.S. 532, 539 (1970) (“[E]xcept upon a showing of substantial prejudice to the complaining party,” “[i]t is always within the discretion of a court or an administrative agency to relax or modify its procedural rules adopted for the orderly transaction of business before it when in a given case the ends of justice require it.” (citation and internal quotation marks omitted; bracket in original)); *National Whistleblower Center v. NRC*, 208 F.3d 256, 262 (D.C. Cir. 2002) (“[T]he NRC possesses the authority ‘to change its procedures on a case-by-case basis . . .’” (citing *City of West Chicago v. NRC*, 701 F.2d 632, 647 (7th Cir. 1983)).

<sup>69</sup> A key consideration to note is that proceeding on all fronts simultaneously with only a fraction of our “normal” Yucca-review budget available presumably would result in current funds running out during the middle of the current fiscal year. If this were to occur, we likely would need to expend funds putting various unfinished tasks back into a suspended state to promote an orderly resumption if and when Congress appropriates additional funds. As explained previously, a *completed* SER and EIS supplement would require no associated closeout expenditures.

<sup>70</sup> See, e.g., Staff Views at 16 (“resuming the adjudicatory proceeding would likely result in suspension of the proceeding before all parties have had an opportunity to fully explore, support, and ultimately receive a decision in the issues they have raised”).

<sup>71</sup> See, e.g., Nevada Views at 9 (acknowledging that “prior to completion of the SER, deposition discovery must remain largely or completely suspended.”) DOE has stated that it would need approximately \$14 million to support participation in the full licensing proceeding. Brief of the United States as *Amicus Curiae* at 6-7 & n.3, *In re Aiken County*, 725 F.3d 255 (2013) (No. 11-1271).

<sup>72</sup> And, as the Staff points out, discovery may be of limited utility in any event; the Board earlier in the proceeding directed that no discovery against the Staff will proceed prior to issuance of relevant SER volumes. See Staff Views at 13 (citing Case Management Order # 2 at 7).

<sup>73</sup> See White Pine County Views at 2 (“Absent additional funding being provided through appropriations . . . or other sources to White Pine County, the County will run out of carryover Nuclear Waste Funding on or about October 15, 2013 and will be compelled to terminate its Yucca Mountain oversight initiatives, including participation in the related NRC licensing proceeding, at that time.”).

with the conduct of the proceeding at that time. Among the questions we leave for another day is whether to reconstitute the LSN, either as it was originally implemented or in a different incarnation. As discussed above, for purposes of completing the SER, we need not reconstitute the LSN. Questions relating to how the LSN might be configured in the future, the need for, and scope of, any potential revisions to the LSN regulations in Subpart J, and how those revisions might take place — whether by case-specific order or rulemaking — would be decided at that time. In the meantime, we observe that, although the immediate purpose of putting the LSN collection into ADAMS is to assist the Staff in finalizing the SER, this effort also doubles as progress toward a system the NRC would have good reason to adopt down the road — appropriations permitting — to replace the previous LSN.

## C. Other Matters

### 1. *Renewed Motion for Recognition of the Timbisha Shoshone Tribal Council*

In 2011, we denied the Timbisha Shoshone Tribal Council’s petition for review of a Board decision declining the Tribal Council’s request (among others) to be recognized as the sole authorized representative of the Timbisha Shoshone Tribe in this case.<sup>74</sup> Given that the adjudication had been suspended, we declined to consider the appeal but indicated that, should the proceeding be reactivated at a future time, the Tribal Council could move to reinstate its petition for review.<sup>75</sup>

The Timbisha Shoshone Tribe’s views included a renewed motion for recognition, requesting that we acknowledge the Tribal Council as the appropriate party for representation of the Tribe in this proceeding.<sup>76</sup> Given that the proceeding remains suspended at this time, we again decline to consider the Tribal Council’s motion. As we observed in CLI-11-15, however, should this adjudicatory proceeding recommence in the future, the Tribal Council may renew its request.<sup>77</sup>

### 2. *Requests for Immediate Production of the Remaining SER Volumes*

Nye County, in addition to recommending that we finalize expeditiously the

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<sup>74</sup> CLI-11-15, 74 NRC 815 (2011). *See Order (Dismissing Timbisha Shoshone Tribal Council’s Motion) (Sept. 28, 2011)* (unpublished).

<sup>75</sup> CLI-11-15, 74 NRC at 815.

<sup>76</sup> Tribe Views and Renewed Motion at 2-7.

<sup>77</sup> For the same reason, Nevada’s suggestion that we entertain petitions for review of LBP-10-22 is denied at this time. *See* Nevada Views at 2, 9-10. Should the adjudication resume, we will consider appeals in due course, consistent with relevant Subpart J rules. *See generally* 10 C.F.R. § 2.1015.

remaining SER volumes, requests that we make an “immediate release of even the unredacted ‘draft’ pre-decisional [SER volumes].”<sup>78</sup> Nye County does not claim that draft SER documents are needed for a particular adjudicatory purpose but instead cites the potential benefits to the public at large.<sup>79</sup> Such a request is appropriately addressed through our Freedom of Information Act (FOIA) process; Nye County may file such a request at any time. Indeed, the NRC recently received a substantially similar request, and, as a separate matter, released redacted versions of SER Volumes 2 and 3 in 2011, also in response to a FOIA request.<sup>80</sup>

### **3. Budget Issues**

Nye County argues that, in light of the mandamus decision, “any restoration of facilities, offices, and equipment [involved in restarting the proceedings] should be accomplished using NRC’s overall administrative budget and not the 11 million dollars available for the license adjudication.”<sup>81</sup> As the Staff correctly observes, however, the existence of a specific appropriation for Yucca Mountain-related licensing activities (i.e., appropriations from the Nuclear Waste Fund) prevents the NRC, under well-settled principles of appropriations law, from using its general appropriations for Yucca-related activities.<sup>82</sup> The actions associated with putting assets in place, such as facilities and offices, are for the specific purpose of the Yucca Mountain licensing proceeding. Therefore, the NRC may not lawfully spend general agency appropriations on these activities.

Finally, a number of participants request that we submit to Congress a budget request that would seek appropriations for the licensing process.<sup>83</sup> We will take those requests under advisement in the course of our agency’s budget process.<sup>84</sup>

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<sup>78</sup> Nye County Views at 8-9.

<sup>79</sup> *Id.* at 9-10.

<sup>80</sup> See McCarthy, Justin, Judicial Watch, Letter to Deborah Dennis, NRC, “Freedom of Information Act Request” (Oct. 3, 2013) (requesting, among other things, “[a]ny and all records of the NRC’s 2010 safety evaluation report [as] it relates to high level waste at Yucca Mountain”) (pending). The NRC released redacted versions of SER Volumes 2 and 3 in response to a 2010 FOIA request for those documents. See Bluey, Robert B., The Heritage Foundation, e-mail to FOIA/PA Officer, NRC (Oct. 22, 2010) (ADAMS Accession No. ML102950378) (requesting SER Volumes 2 and 3); NRC Final Response to FOIA 2011-0015 (Feb. 14, 2011) (ADAMS Accession No. ML110480651) (package).

<sup>81</sup> Nye County Points and Authorities at 14. Nye County reiterates this point in its views (at 18).

<sup>82</sup> See NRC Staff Views at 19 n.59 (citing Gov’t Accountability Off., Principles of Federal Appropriations Law, Vol. I, at 2-21, GAO-04-261SP (3d ed. 2004)).

<sup>83</sup> See Four Counties Views at 2, NEI Views at 3, PIIC Views at 2.

<sup>84</sup> See generally Office of Management and Budget Circular No. A-11, “Preparation, Submission, (Continued)

Concurrent with our decision today, we also provide separate direction to the Staff regarding our overarching expectations for the efficient use of available funds, as well as direction for the preparation of plans and status reports.<sup>85</sup> As discussed above, completion of the SER (including necessary records management activities) and adoption of the EIS supplement likely would expend nearly all of the funds currently available to the NRC, leaving only a small cushion for additional expenses given that, once completed, none of the identified activities will require any expenditure of funds for “orderly closure.” Based on current cost estimates, at least, we will likely be unable to make meaningful progress on steps other than those outlined in this decision unless and until Congress appropriates additional funds for the agency’s Yucca Mountain review process. Embarking upon additional activities, and in particular, resuming the adjudication (including Phase I discovery) would jeopardize our ability to complete the tasks that, as discussed herein, constitute the next logical steps in the licensing process. We seek to maintain an adequate margin to guard against this possibility. We will closely monitor the progress of these activities,<sup>86</sup> and we will re-evaluate this conclusion in the event that circumstances materially change.<sup>87</sup>

### III. CONCLUSION

For the reasons set forth above, we *direct* the NRC Staff to complete and issue the Safety Evaluation Report associated with the construction authorization

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and Execution of the Budget” §§ 22, 110 (July 2013), *available at* [http://www.whitehouse.gov/sites/default/files/omb/assets/a11\\_current\\_year/a11\\_2013.pdf](http://www.whitehouse.gov/sites/default/files/omb/assets/a11_current_year/a11_2013.pdf) (explaining government-wide laws and policies regarding budget-related communications with the public and submission of budget supplements and amendments).

<sup>85</sup> Staff Requirements — SECY-13-0113 — Memorandum and Order Concerning Resumption of Yucca Mountain Licensing Process (Nov. 18, 2013) (ADAMS Accession No. ML13322A007).

<sup>86</sup> See *id.* In this vein, we are also providing to Congress reports on activities and expenditure of unobligated Nuclear Waste Fund monies. See September 10 House Subcommittee Hearing Transcript at 36 (statement of Dr. Allison Macfarlane, NRC Chairman) (stating that the NRC will provide monthly updates to the Committee on Nuclear Waste Fund activities and expenditures). These reports will be made available to the public on the NRC website. See generally <http://www.nrc.gov/reading-rm/doc-collections/congress-docs/correspondence/2013/> (last visited Nov. 1, 2013) (providing links to Commission correspondence with Congress, including the first status report, dated October 23, 2013).

<sup>87</sup> NEI requests that, following SER completion, we “identify [our] budget and prepare a prioritized plan for use of [any remaining] appropriated funds,” including a timeline of all activities needed to complete the licensing process, and an estimate of resources necessary to complete those activities. NEI Views at 2. Should appropriated funds remain following completion of the activities directed in this decision, an estimate of further steps will prove necessary, and we will assess how best to use remaining funds at that time.

application and load the LSN document collection into ADAMS. We *request* DOE to prepare the supplemental environmental impact statement that the Staff has determined is needed for purposes of the review of this application under NEPA. We *continue* to hold this adjudication in abeyance and *decline* to direct the Staff to reconstitute the Licensing Support Network. The Nye County and Nevada Motions are *granted in part* and *denied in part*, as discussed herein. Finally, we *decline* to decide the Tribal Council's renewed motion for recognition.

IT IS SO ORDERED.<sup>88</sup>

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 18th day of November 2013.

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<sup>88</sup>Commissioner Apostolakis has recused himself from this adjudication and, therefore, did not participate in this matter. *See* Notice of Recusal (July 15, 2010).



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Paul S. Ryerson**, Chairman  
**Dr. Paul B. Abramson**  
**Dr. Gary S. Arnold**

**In the Matter of**

**Docket Nos. 50-454-LR, 50-455-LR  
50-456-LR, 50-457-LR  
(ASLBP No. 13-929-02-LR-BD01)  
(Renewal of Operating Licenses)**

**EXELON GENERATION  
COMPANY, LLC  
(Braidwood Nuclear Power Station,  
Units 1 and 2; Byron Nuclear  
Power Station, Units 1 and 2)**

**November 19, 2013**

In this proceeding regarding the application of Exelon Generation Co., LLC to renew its operating licenses for Byron Nuclear Power Station, Units 1 and 2, and Braidwood Nuclear Power Station, Units 1 and 2, the Board denies a hearing request and petition to intervene because each of petitioner's two contentions challenges a Commission regulation in violation of 10 C.F.R. § 2.335(a).

**RULES OF PRACTICE: IMPERMISSIBLE CHALLENGE TO NRC  
REGULATIONS**

Absent a petition for a waiver, no rule or regulation of the Commission "is subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding." 10 C.F.R. § 2.335(a) (2013).

## **REGULATIONS: CONSIDERATION OF IMPACTS AT OPERATING LICENSE RENEWAL STAGE**

An applicant for renewal of a license to operate a nuclear power plant “is not required to include discussion of need for power.” 10 C.F.R. § 51.53(c)(2) (2013).

## **REGULATIONS: APPLICATION FOR RENEWED LICENSE TIME FRAME**

An application for renewal of a license to operate a nuclear power plant may be submitted as early as 20 years before expiration of the license then in effect. 10 C.F.R. § 54.17(c) (2013).

### **MEMORANDUM AND ORDER (Denying Hearing Request and Petition to Intervene)**

Before the Atomic Safety and Licensing Board (the Board) is a petition<sup>1</sup> submitted by the Environmental Law and Policy Center (the Center) in response to a notice of an opportunity for a public hearing regarding an application by Exelon Generation Company, LLC (Exelon).<sup>2</sup> Exelon seeks to renew its operating licenses for Byron Nuclear Power Station, Units 1 and 2, and Braidwood Nuclear Power Station, Units 1 and 2, which are located, respectively, near Byron, Illinois and Braidwood, Illinois.

We deny the Center’s Petition because each of its two proffered contentions challenges a Commission regulation in violation of 10 C.F.R. § 2.335(a). Additionally, we conclude that neither contention is accompanied by sufficient factual support to raise a genuine dispute, and therefore neither is admissible for this reason as well.<sup>3</sup>

#### **I. BACKGROUND**

The NRC is considering Exelon’s application to renew for 20 years its operating licenses for the Byron and Braidwood units. The current operating licenses for

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<sup>1</sup> Hearing Request and Petition to Intervene by the Environmental Law and Policy Center (Sept. 23, 2013) [hereinafter Petition]. Although the Center purports to file its Petition pursuant to 10 C.F.R. § 2.714, this regulation was abolished in 2004. The Board treats the Petition as though filed under 10 C.F.R. § 2.309. *See Changes to Adjudicatory Process*, 69 Fed. Reg. 2182, 2220-22 (Jan. 14, 2004).

<sup>2</sup> Byron and Braidwood License Renewal Application, 78 Fed. Reg. 44,603 (July 24, 2013).

<sup>3</sup> See 10 C.F.R. §§ 2.309(f)(1)(v)-(vi) (2013).

Byron Nuclear Power Station, Units 1 and 2, expire, respectively, on October 31, 2024, and November 6, 2026.<sup>4</sup> The current operating licenses for Braidwood Nuclear Power Station, Units 1 and 2, expire, respectively, on October 17, 2026, and December 18, 2027.<sup>5</sup>

On September 23, 2013, the Center filed a timely hearing request and petition to intervene. On October 28, 2013, both Exelon and the NRC Staff filed answers opposing the Petition, contending that neither of the Center's two contentions is admissible.<sup>6</sup> On November 4, 2013 the Center filed a reply.<sup>7</sup> Exelon moved on November 14, 2013, to strike portions of the Center's Reply.<sup>8</sup>

## II. ANALYSIS

To participate as a party in an adjudicatory proceeding concerning a proposed licensing action, a petitioner must (1) establish it has standing; and (2) proffer at least one admissible contention.<sup>9</sup>

Neither Exelon nor the NRC Staff objects to the Center's standing.<sup>10</sup> We need not independently consider the issue, because the Center has not submitted an admissible contention.

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<sup>4</sup> 78 Fed. Reg. at 44,603.

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

<sup>6</sup> Exelon's Answer Opposing the Hearing Request and Petition to Intervene Filed by the Environmental Law and Policy Center (Oct. 28, 2013) [hereinafter Exelon's Answer]; NRC Staff Answer to Environmental Law and Policy Center Hearing Request and Petition to Intervene (Oct. 28, 2013) [hereinafter Staff Answer]. Because of the partial shutdown of the federal government, the Commission extended the time to file oppositions by 8 days. *See Aerotest Operations, Inc.* (Aerotest Radiography & Research Reactor) et al., Notice (Oct. 17, 2013) (unpublished).

<sup>7</sup> Reply in Support of the Environmental Law and Policy Center's Hearing Request and Petition to Intervene (Nov. 4, 2013) [hereinafter Reply].

<sup>8</sup> Exelon's Motion to Strike Portions of ELP's Reply (Nov. 14, 2013) [hereinafter Motion to Strike].

<sup>9</sup> 10 C.F.R. § 2.309(a) (2013). Exelon also contends, in a footnote, that the Petition is subject to dismissal because the Center's attorneys had not initially filed a notice of appearance pursuant to 10 C.F.R. § 2.314(b) and therefore "there is no showing that the individuals who signed the Petition are authorized to represent the Petitioner." Exelon's Answer at 3 n.12. Although the better practice would be to file a section 2.314(b) notice of appearance, pursuant to 10 C.F.R. § 2.304(d), the signature of a person signing a pleading "is a representation that the document has been subscribed in the capacity specified with full authority." In any event, on November 4, 2013, the Center's counsel filed notices of appearance that fully comply with 10 C.F.R. § 2.314(b), and we decline to dismiss the Petition for that reason.

<sup>10</sup> Exelon's Answer at 3-4; Staff Answer at 15-16.

## A. Contention 1

Contention 1 is labeled: “Failure to Include Need for Power Analyses in the Braidwood and Byron Environmental Reports.”<sup>11</sup> The Center claims that Exelon’s evaluation of reasonable alternatives to renewal of the facilities’ licenses is deficient because, allegedly, “it is improperly constrained by 10 CFR 51.53(c)(2), which provides, *in clear violation of NEPA*, that the application need not analyze the ‘need for power’ at the stations.”<sup>12</sup>

However, in connection with reactor operating licenses, the Commission has made an explicit determination that it can satisfy its responsibility under NEPA to consider reasonable alternatives to the proposed action at the license renewal stage without an inquiry into the need for power. As stated during the rulemaking process, “the significant environmental impacts associated with the siting and construction of a nuclear power plant have already occurred by the time a licensee is seeking a renewed license.”<sup>13</sup> Moreover, “the NRC has no role in the energy planning decisions of State regulators and utility officials.”<sup>14</sup> Accordingly, the Commission has determined that “the NRC will neither perform analyses of the need for power nor draw any conclusions about the need for generating capacity in a license renewal review.”<sup>15</sup> In contrast, the Center contends that “[i]t is impossible to engage in the rigorous and objective evaluation of alternatives required by NEPA without first analyzing the need for power.”<sup>16</sup> The thrust of Contention 1, therefore, is that the Commission has promulgated a regulation that violates the National Environmental Policy Act (NEPA).<sup>17</sup>

It is, however, “not the role of licensing boards to review and to reconsider the wisdom of the Commission’s regulations.”<sup>18</sup> Absent a petition for a waiver, no rule or regulation of the Commission “is subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding.”<sup>19</sup> The Center’s sole remedy to challenge the wisdom or lawfulness of 10 C.F.R. § 51.53(c)(2) is to file a petition for rulemaking with the Commission itself, pursuant to 10 C.F.R. § 2.802.

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<sup>11</sup> Petition, Exh. 4, Contentions Included with Petition to Intervene by the Environmental Law and Policy Center at 1 (Sept. 23, 2013) [hereinafter Contentions].

<sup>12</sup> Contentions at 2 (emphasis added).

<sup>13</sup> Denial of Petition for Rulemaking, 68 Fed. Reg. 55,905, 55,910 (Sept. 29, 2003).

<sup>14</sup> Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 61 Fed. Reg. 28,467, 28,472 (June 5, 1996).

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

<sup>16</sup> Contentions at 2.

<sup>17</sup> National Environmental Policy Act, 42 U.S.C. §§ 4321-4370 (2006).

<sup>18</sup> *Honeywell International, Inc.* (Metropolis Works Uranium Conversion Facility), LBP-12-6, 75 NRC 256, 270 (2012).

<sup>19</sup> 10 C.F.R. § 2.335(a) (2013).

To be sure, section 2.335 does create a process for seeking waivers of NRC regulations in “extraordinary” situations where special circumstances can be demonstrated.<sup>20</sup> But the Center has not requested a waiver, nor has it complied with the requirement of providing an affidavit setting forth “with particularity” the special circumstances that might justify a waiver.<sup>21</sup> On the contrary, the Center’s Petition challenges the lawfulness of section 51.53(c)(2) per se, and not as applied to any unique or unusual circumstances in this proceeding.

In its Reply, the Center argues for the first time that Exelon’s status as a merchant generator operating in a “de-regulated state” means that “[t]he Commission should interpret 10 C.F.R. §§ 51.53(c)(2) and 51.95(c)(2) as not applying to Exelon.”<sup>22</sup> Even if we were to permit the Center to raise this new policy argument in its Reply,<sup>23</sup> and regardless of whether the argument has merit, this Board is not empowered to reword the clear language of the Commission’s regulations. Indeed, even a properly supported request for a waiver cannot be granted when it seeks to exempt circumstances that are “common to a large class of facilities” rather than “unique.”<sup>24</sup>

Contention 1 is therefore not admissible, because it both violates 10 C.F.R. § 2.335(a) and raises an issue outside the scope of this proceeding in contravention of 10 C.F.R. § 2.309(f)(1)(iii).

Moreover, even if the Commission wished or had empowered its licensing boards to review the lawfulness or wisdom of its regulations, the Center has failed to make even the “minimal” factual showing — as opposed to bare assertions and speculation<sup>25</sup> — that is necessary to raise a “genuine dispute” as required by 10 C.F.R. § 2.309(f)(1)(vi). The Center provides no factual support for its assertion that a need-for-power analysis could be expected to lead to a different result. Indeed, the Center supplies no factual support for Contention 1 whatsoever. Contention 1 is therefore also not admissible because it fails to satisfy the pleading requirements of 10 C.F.R. §§ 2.309(f)(1)(v)-(vi).<sup>26</sup>

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<sup>20</sup> *Exelon Generation Co.* (Limerick Generating Station, Units 1 and 2), CLI-13-7, 78 NRC 199, 206-07 (2013).

<sup>21</sup> 10 C.F.R. § 2.335(b) (2013).

<sup>22</sup> Reply at 6-7.

<sup>23</sup> See *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-25, 60 NRC 223, 225 (2004) (stating that “new arguments may not be raised for the first time in a reply brief”).

<sup>24</sup> *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-05-24, 62 NRC 551, 559-60 (2005).

<sup>25</sup> See Rules of Practice for Domestic Licensing Proceedings — Procedural Changes in the Hearing Process, 54 Fed. Reg. 33,168, 33,171 (Aug. 11, 1989).

<sup>26</sup> See generally Exelon’s Answer at 14-16; Staff Answer at 21-25.

## B. Contention 2

Contention 2 is labeled “License Renewal of Braidwood and Byron Is Premature.”<sup>27</sup> The Center claims that it “is premature to relicense nuclear facilities with existing permits that will not expire for eleven to fourteen years” because “relicensing more than ten years in advance of the expiration of the existing licenses will result in [environmental impact statements] that will be stale by the time the existing licenses expire.”<sup>28</sup>

Contention 2 improperly challenges the reasonableness under NEPA of 10 C.F.R. § 54.17(c), which expressly allows application for a renewed license as early as 20 years before expiration of the license then in effect. The Commission “established the 20-year timeframe to balance the need to collect sufficient operating history data to support [a license renewal application] with the needs of a utility to plan for the replacement of retired nuclear power plants in the event of an unsuccessful [license renewal application].”<sup>29</sup>

As with Contention 1, in its Petition and in its Reply the Center neither requests a waiver nor points to any unique or unusual circumstances in this proceeding that might possibly justify waiving the Commission’s regulation. The Center simply challenges the regulation per se. Moreover, just last year, the Commission denied a rulemaking petition to modify section 54.17(c) to require license renewal applications to be filed no earlier than 10 years before the expiration of existing licenses.<sup>30</sup> In denying that rulemaking petition, the Commission considered and rejected the very same arguments and proposed remedy that the Center seeks this Board to address through Contention 2.<sup>31</sup> In particular, the Commission expressly addressed and rejected the argument “that the regulation conflicts with, circumvents, or frustrates the intent of NEPA.”<sup>32</sup>

Contention 2 is therefore not admissible, because it both violates 10 C.F.R. § 2.335(a) and raises an issue outside the scope of this proceeding in contravention of 10 C.F.R. § 2.309(f)(1)(iii).

And again, even if the Commission wished or had empowered this Board to review the lawfulness or wisdom of its regulations, the Center has failed to make the minimal factual showing necessary to raise a “genuine dispute” under 10 C.F.R. § 2.309(f)(1)(vi). The Center claims that changes in the power generation

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<sup>27</sup> Contentions at 4.

<sup>28</sup> *Id.* at 5.

<sup>29</sup> Filing a Renewed License Application, 77 Fed. Reg. 28,316, 28,317 (May 14, 2012).

<sup>30</sup> See *id.* at 28,316.

<sup>31</sup> Compare Contentions at 5-6 with 77 Fed. Reg. 28,316 *et seq.*

<sup>32</sup> 77 Fed. Reg. at 28,320.

business<sup>33</sup> will likely render obsolete environmental analyses that are performed too early. But surely the fact that (like many industries) the retail electric business is rapidly changing was something the Commission was aware of when, just last year, it rejected a petition to allow license renewal applications no earlier than 10 years before the expiration of existing licenses. Contention 2 is therefore also not admissible because it fails to satisfy the pleading requirements of 10 C.F.R. §§ 2.309(f)(1)(v)-(vi).<sup>34</sup>

### **III. ORDER**

For the foregoing reasons, the Center's Petition is *denied*. Exelon's Motion to Strike is *denied* as moot.

The proceeding before this Board is therefore terminated. In accordance with 10 C.F.R. § 2.311, any appeal to the Commission from this Memorandum and Order must be taken within twenty-five (25) days after it is served.

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Paul S. Ryerson, Chairman  
ADMINISTRATIVE JUDGE

Dr. Paul B. Abramson  
ADMINISTRATIVE JUDGE

Dr. Gary S. Arnold  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
November 19, 2013

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<sup>33</sup> See Petition, Attach. 2, Disruptive Challenges: Financial Implications and Strategic Responses to a Changing Retail Electric Business (Jan. 2013) at 1.

<sup>34</sup> See generally Exelon's Answer at 21-23; Staff Answer at 30-38.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Lawrence G. McDade**, Chairman  
**Dr. Michael F. Kennedy**  
**Dr. Richard E. Wardwell**

**In the Matter of**

**Docket Nos. 50-247-LR**

**50-286-LR**  
**(ASLBP No. 07-858-03-LR-BD01)**

**ENTERGY NUCLEAR  
OPERATIONS, INC.  
(Indian Point, Units 2 and 3)**

**November 27, 2013**

In this proceeding arising from the License Renewal Application (LRA) of Entergy Nuclear Operations, Inc. (Entergy or Applicant) for two reactors located at the Indian Point Energy Center (IPEC), one of which expired on September 28, 2013 (IP2), and one of which will expire on December 12, 2015 (IP3), which requested authorization for the continued operation of these reactors for up to 20 years beyond these expiration dates, the Licensing Board — ruling on the merits of nine contentions — concludes that, with regard to the issues raised regarding the adequacy of Entergy's Aging Management Plans in contentions RK-TC-2 (flow-accelerated corrosion), NYS-5 (buried piping), and NYS-6/7 (inaccessible low- and medium-voltage cables), Entergy has demonstrated that the effects of aging will be adequately managed during the period of extended operation as required by 10 C.F.R. § 54.21(a)(3). With regard to the issues raised regarding input parameters in SAMA analysis in contentions NYS-12C (decontamination cost estimates), and NYS-16B (population estimates), and with regard to the issues raised with regard to the impact of continued operation of these reactors on surrounding property values in NYS-17B, and the consideration of the no-action alternative in NYS-37, the NRC Staff has demonstrated that the FEIS complies

with NEPA and with 10 C.F.R. Part 51. With regard to CW-EC-3A, the Board found that while the NRC Staff's Environmental Justice analysis was flawed, the record as developed during the hearing cured the defect and with regard to NYS-8, because the Board found that transformers were "passive" components, they fall within the scope of 10 C.F.R. Part 54 and must undergo AMR pursuant to 10 C.F.R. § 54.21(a)(1).

#### **LICENSE RENEWAL: REASONABLE ASSURANCE**

In determining whether an applicant's LRA provides the requisite "reasonable assurance," the Board must conclude that the applicant has properly scoped the aging management review; that the existing or planned aging management programs conform to the descriptions in the license renewal application; and that the documentation used to support the application is auditable, retrievable, and in fact does support the application.

#### **LICENSE RENEWAL: AGING MANAGEMENT PLAN**

Sections 54.21(a)(3) and 54.29(a) of 10 C.F.R. provide the applicable legal standards for the evaluation of Indian Point's AMP for buried pipes and tanks. These regulations require that Entergy must demonstrate, to the point of providing "reasonable assurance," that the intended functions of these components will be maintained in accordance with the CLB for the PEO.

#### **LICENSE RENEWAL: AGING MANAGEMENT PLAN**

If an AMP is consistent with GALL, it is adequate. However, to simply claim consistency with GALL is insufficient. An applicant must present an AMP with sufficient information that the Board will be able to draw its own independent conclusion as to whether the applicant's programs are in fact consistent with GALL.

#### **LICENSE RENEWAL: REASONABLE ASSURANCE**

A commitment by a license renewal applicant to implement one of the AMPs detailed in GALL is sufficient to provide "reasonable assurance" that the effects of aging will be adequately managed so that intended functions will be maintained consistent with the CLB for the period of extended operations as required by 10 C.F.R. § 54.21(a)(3).

### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES**

In the license renewal context, the scope of the Staff's NEPA review is substantially different from, and broader than the scope of, the Staff's review of Part 54 safety issues. The Commission's AEA review under Part 54 does not compromise or limit NEPA.

#### **NEPA: GENERIC ISSUES**

NEPA's "hard look requirement" does not allow sweeping generalities about possible effects and risk without a justification as to why more definitive information was not provided.

#### **NEPA: GENERIC ISSUES**

Under the NEPA "rule of reason," "the agency's environmental analysis need only consider environmental impacts that are reasonably foreseeable, and need not consider remote and speculative scenarios."

### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES (SAMA)**

As a NEPA analysis, the SAMA analysis is not based on either the best-case or the worst-case accident scenarios, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios. When a board is called upon to assess a SAMA analysis, the question is not whether more or different analysis can be done.

### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES (SAMA)**

Contentions challenging a SAMA analysis must identify a deficiency that plausibly could alter the overall result of the analysis in a material way. The question of material impacts hinges upon whether a SAMA alternative may be cost-beneficial to implement. However, like other NEPA evaluations, a SAMA analysis is governed by the rule of reason and alternatives must be bounded by some notion of feasibility.

### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES (SAMA)**

Performed under NEPA, a SAMA analysis evaluates the degree to which specific additional mitigation measures may reduce the probability or consequences of various accident scenarios on a site-specific basis.

#### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES (SAMA)**

A SAMA analysis must necessarily be site specific because the potential consequences of a severe accident will largely be the product of the location of the plant.

#### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES (SAMA)**

SAMA analyses, as issues of mitigation, need only be discussed in sufficient detail to ensure that environmental consequences of the proposed project have been fairly evaluated.

#### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES (SAMA)**

In the SAMA context NEPA requires the FSEIS to include an analysis containing reasonable estimates.

#### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES (SAMA)**

In order to satisfy its obligations under NEPA the FSEIS need only explain any known shortcomings in available methodology, disclosure of incomplete or unavailable information and significant uncertainties, and a reasoned evaluation of whether and to what extent these or other considerations credibly could alter the SAMA analysis conclusions.

#### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES (SAMA)**

The proper question is not whether there are plausible alternative choices for use in the analysis, but whether the analysis that was done is reasonable under NEPA.

#### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES (SAMA)**

To be successful, an Intervenor must point to a deficiency that renders the SAMA analysis unreasonable under NEPA.

#### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES (SCOPE)**

Category 1 impacts are those that the Commission has determined are common across plants — they have been evaluated generically in the GEIS for license renewal. These impacts are outside the scope of individual license renewal proceedings.

### **LICENSE RENEWAL: ENVIRONMENTAL ISSUES (SCOPE)**

Category 2 impacts are those that require plant-specific analysis in a supplemental EIS.

### **NEPA: CONSIDERATION OF ALTERNATIVES**

When taking the requisite hard look at the environmental consequences of the alternatives to the proposed licensing action, NRC regulations require the EIS to discuss the no-action alternative.

### **NEPA: CONSIDERATION OF ALTERNATIVES**

The Staff is instructed to analyze the potential environmental impacts associated with not renewing the license within the “no-action alternative” section of the energy-alternatives chapter in the EIS.

### **NEPA: CONSIDERATION OF ALTERNATIVES**

Commission regulations, however, do not require the inclusion of an analysis within the EIS regarding the need for the power generated by an existing plant in license renewal proceedings.

### **NEPA: ENVIRONMENTAL JUSTICE**

Disparate impact analysis is the NRC’s principal tool for advancing environmental justice under NEPA. The NRC’s goal is to identify and adequately weigh, or mitigate, effects on low-income and minority communities that become apparent only by considering factors peculiar to those communities.

### **NEPA: ENVIRONMENTAL JUSTICE**

Environmental justice, as applied to the NRC, means that the agency will make an effort under NEPA to become aware of the demographic and economic circumstances of local communities.

### **NEPA: ENVIRONMENTAL JUSTICE**

Environmental justice was not addressed in NUREG-1437 GEIS and accordingly, EJ must be addressed in individual license renewal reviews.

### **NEPA: ENVIRONMENTAL IMPACT STATEMENT (NEED FOR SUPPLEMENTATION)**

In the event that a Board finds that the Staff's NEPA analysis is insufficient, it need not require that the agency staff "go back to the drawing board" and amend or supplement the EIS. Rather, the Board's review and admitted exhibits are part of the environmental record upon which the Commission makes its ultimate balancing judgment.

### **NEPA: ENVIRONMENTAL IMPACT STATEMENT (NEED FOR SUPPLEMENTATION)**

The adjudicatory record and Board decision (and, of course, any Commission appellate decisions) become, in effect, part of the FEIS.

### **NEPA: ENVIRONMENTAL IMPACT STATEMENT (NEED FOR SUPPLEMENTATION)**

Accordingly, to the extent that any environmental findings by the Presiding Officer (or the Commission) differ from those in the FEIS, the FEIS is deemed modified by the decision.

### **NEPA: RECORD OF DECISION**

NEPA and Part 51 require that as part of its environmental review the Staff prepares a "Record of Decision" to accompany any Commission decision on any action for which a final EIS has been prepared.

### **NEPA: RECORD OF DECISION**

Typically, the Staff prepares the record of decision, but when, as here, a hearing is held, the Board's initial decision constitutes the record of decision as to those issues that were litigated during the hearing and the hearing can provide the public venting that the circulation of an amended EIS would otherwise provide.

### **NEPA: RECORD OF DECISION**

But if modification of the FEIS by Staff testimony or the Board's decision is too substantial, recirculation of the FEIS would be required. In a given instance, the Staff's evidence may depart so markedly from the positions espoused or information reflected in the FEIS as to require formal redrafting and recirculation for comment of the environmental statement (or at least those portions which are

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## **LIST OF ABBREVIATIONS**

ACE	Accuracy and Coverage Evaluation
ACRS	Advisory Committee on Reactor Safeguards
AEA	Atomic Energy Act
AFW	Auxiliary Feedwater System
AMP	Aging Management Program
APA	Administrative Procedure Act
APEC	Area Potential Earth Current
API	American Petroleum Institute
AWWA	American Water Works Association
BPTIMP	Buried Pipes and Tanks Inspection and Monitoring Program
BPTIP	Buried Pipes and Tanks Inspection Program
BWR	Boiling Water Reactor
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIS	Close Interval Survey
CLB	Current Licensing Basis
CP	Cathodic Protection
CR	Condition Report
CST	Condensate Storage Tank
DSEIS	Draft Supplemental Environmental Impact Statement
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
EPU	Extended Power Uprate
FAC	Flow-Accelerated Corrosion
FEIS	Final Environmental Impact Statement
FSAR	Final Safety Analysis Report
FSEIS	Final Supplemental Environmental Impact Statement
FSER	Final Safety Evaluation Report
GALL-1	Generic Aging Lessons Learned, Revision 1
GALL-2	Generic Aging Lessons Learned, Revision 2
GEIS	Generic Environmental Impact Statement
GWT	Guided Wave Ultrasonic Testing

IP1	Indian Point Unit 1
IP2	Indian Point Unit 2
IP3	Indian Point Unit 3
IPA	Integrated Plant Assessment
IPEC	Indian Point Energy Center
LOCA	Loss of Coolant Accident
LRA	License Renewal Application
LWR	Light Water Reactor
NACE	National Association of Corrosion Engineers
NEI	Nuclear Energy Institute
NEPA	National Environmental Policy Act
NL	Nuclear Licensing
Non-EQ	Non-Environmentally Qualified
NPP	Nuclear Power Plant
NRC	U.S. Nuclear Regulatory Commission
NSAC	Nuclear Safety Analysis Center
PCA	PCA Engineering, Inc.
PEO	Period of Extended Operation
RAI	Request for Additional Information
SAMA	Severe Accident Mitigation Alternatives
SAR	Safety Analysis Report
SBO	Station Blackout
SER	Safety Evaluation Report
SIA	Structural Integrity Associates
SPU	Stretch Power Upgrade
SRP-LR	Standard Review Plan — License Renewal
SSC	System, Structure, and Component
SSER	Supplemental Safety Evaluation Report
TC	Technical Contention
TLAA	Time-Limited Aging Analysis
UFSAR	Updated Final Safety Analysis Report
UPTIMP	Underground Piping and Tanks Inspection and Monitoring Program
UT	Ultrasonic Testing

## **PARTIAL INITIAL DECISION** **(Ruling on Track 1 Contentions)<sup>1</sup>**

This proceeding arises out of the April 23, 2007, application of Entergy Nuclear Operations, Inc. (Entergy or Applicant) to renew its 10 C.F.R. Part 50 operating licenses for Indian Point Nuclear Generating Units 2 and 3 (IP2 and IP3) which are located at its Indian Point Energy Center (IPEC) in Buchanan, New York.<sup>2</sup> Currently pending before this Atomic Safety and Licensing Board (the Board) are nine contentions,<sup>3</sup> each asserting specific grounds for denial of license renewal. If granted renewed licenses, Entergy would be permitted to operate IP2 and IP3 for an additional 20-year period beyond the period specified in the current operating licenses,<sup>4</sup> which expired on September 28, 2013, for IP2, and will expire on December 12, 2015, for IP3.<sup>5</sup> Nevertheless, pursuant to 10 C.F.R. § 2.109(b), IP2 and IP3 may continue to operate until this adjudication is completed.<sup>6</sup>

On June 8, 2012, the Board issued a hearing notice, listing the previously admitted contentions on which the Board would take oral testimony during October and December, 2012.<sup>7</sup> The Track 1 hearing contentions, in brief, are as follows:

1. Contention RK-TC-2:<sup>8</sup> Challenges the adequacy of Entergy's aging management program (AMP) for flow-accelerated corrosion.

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<sup>1</sup> The nine contentions that are the subject of this Partial Initial Decision (the "Track 1" contentions) went to hearing in October, November, and December 2012. As will be explained below, an additional six contentions (the "Track 2" contentions) will not be heard until the NRC Staff completes its safety and environmental review.

<sup>2</sup> 72 Fed. Reg. 26,850 (May 11, 2007).

<sup>3</sup> A tenth contention, RK-EC-3/CW-EC-1, concerning impacts from spent fuel pool leaks was scheduled to be heard during the October 2012 session but settled shortly before the hearing was to begin. *See* Licensing Board Consent Order (Approving Settlement of Consolidated Contention Riverkeeper EC-3A and Clearwater EC-1 (Oct. 17, 2012) (unpublished).

<sup>4</sup> 72 Fed. Reg. 26,850.

<sup>5</sup> *Id.* We note that the second *Federal Register* Notice concerning this case stated the expiration for IP2 license is September 9, 2013. Both September 9, 2013, and September 28, 2013, appear in various documents as the license expiration date for IP2. *See* 72 Fed. Reg. 42,134, 42,134 (Aug. 1, 2007); *but see* License Renewal Application Indian Point Energy Center at 1-1 (Apr. 23, 2007) (Ex. ENT00015A) [hereinafter License Renewal Application].

<sup>6</sup> *See* 10 C.F.R. § 2.109(b) (2012).

<sup>7</sup> 77 Fed. Reg. 36,015, 36,016 (June 15, 2012). Due to circumstances that arose after the time of the publication of the hearing notice, the Board also conducted a brief session on November 28, 2012. Licensing Board Order (Scheduling the Continuation of the Hearing on Contention NYS-37) (Nov. 14, 2012) (unpublished).

<sup>8</sup> Contentions beginning with letters "RK" were submitted by Riverkeeper. The letters "TC" indicated that it was proffered as a technical contention, as opposed to an environmental contention (EC).

2. Contention NYS-5:<sup>9</sup> Challenges the adequacy of Entergy's AMP for the inspection and monitoring for corrosion or leaks in all buried systems, structures, and components (SSCs) that convey or contain radioactive material.
3. Contention NYS-6/7: Challenges the adequacy of Entergy's AMP for non-environmentally qualified inaccessible medium-voltage and low-voltage cables and wiring.
4. Contention NYS-8: Challenges Entergy's omission of an AMP for safety-related electrical transformers.
5. Contention NYS-12C: Challenges the Nuclear Regulatory Commission's (NRC Staff or Staff) compliance with the National Environmental Policy Act (NEPA) concerning its severe accident mitigation alternatives (SAMA) analysis of the decontamination and cleanup costs of a severe accident in the New York Metropolitan area.<sup>10</sup>
6. Contention NYS-16B: Challenges the Staff's compliance with NEPA concerning its SAMA analysis of the cost of human exposure in the case of a severe accident.
7. Contention NYS-17B: Challenges the Staff's compliance with NEPA relating to an analysis of the impacts of license renewal on property values for real property near the IPEC.
8. Contention NYS-37: Challenges the Staff's compliance with NEPA concerning the adequacy of its no-action alternative analysis.
9. Contention CW-EC-3A:<sup>11</sup> Challenges the Staff's compliance with NEPA concerning its environmental justice analysis.

In this Partial Initial Decision, we address the merits of these nine contentions. We note that this decision does not resolve all pending issues in this proceeding, as six additional contentions (Track 2 Contentions) have not yet gone to hearing, and there still remains the potential for the filing of new and/or amended contentions.<sup>12</sup>

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<sup>9</sup>Contentions beginning with the letters "NYS" were submitted by New York.

<sup>10</sup>An explanation of SAMA analyses begins at page 451, below.

<sup>11</sup>Contentions beginning with the letters "CW" were submitted by Clearwater.

<sup>12</sup>The not-yet litigated contentions are NYS-25, NYS-26B/RK-TC-1B, NYS-38/RK-TC-5, RK-EC-8, NYS-39/RK-EC-9/CW-EC-10, and CW-SC-4. *See* 77 Fed. Reg. at 36,016 (discussing the posture of NYS-38/RK-TC-5 and RK-EC-8); *id.* at 36,016 n.14 (discussing the posture of NYS-25, NYS-26B/RK-TC-1B, NYS-38/RK-TC-5, and RK-EC-8); Licensing Board Order (Holding Contentions NYS-39/RK-EC-9/CW-EC-10 and CW-SC-4 in Abeyance) (Aug. 8, 2012) (unpublished). An *(Continued)*

## I. GENERAL BACKGROUND

On April 23, 2007, Entergy filed a license renewal application (LRA) pursuant to 10 C.F.R. Part 54<sup>13</sup> requesting an additional 20-year term for its operating licenses for IP2 and IP3 (Operating Licenses Nos. DPR-26 and DPR-64) that have been issued under section 104(b) of the Atomic Energy Act (AEA) of 1954 as amended.<sup>14</sup>

Entergy's renewal application encompasses the facility operating licenses for both IP2 and IP3, and renewal of those NRC source materials, special nuclear material, and byproduct material licenses that are subsumed or combined with the facility operating licenses.<sup>15</sup>

### A. Contention Admissibility and the Parties to the Proceeding

After the Commission published in the *Federal Register* a notice of opportunity for hearing,<sup>16</sup> sixteen parties filed requests for hearing and petitions to intervene: the State of New York (New York);<sup>17</sup> the State of Connecticut (Connecticut);<sup>18</sup>

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amended contention arose from the NRC Staff's supplements to the Final Environmental Impact Statement and/or may arise from the Final Safety Evaluation Report, as well as Entergy changes to its LRA. *See* Riverkeeper, Inc. Consolidated Motion for Leave to File Amended Contention RK-EC-8A and Amended Contention RK-EC-8A (Aug. 20, 2013); *see also* Licensing Board Order (Memorializing Items Discussed During the July 9, 2012 Status Conference) (July 12, 2012) at 2-3 (unpublished); Licensing Board Order (Granting State of New York Motion for Extension of Time to File New Contentions) (Aug. 31, 2012) at 1 (unpublished); NRC Staff's 21st Status Report in Response to the Atomic Safety and Licensing Board's Order of February 16, 2012 (Nov. 1, 2013) at 2-3 (indicating that the Staff expects to issue the SER Supplement in "early- to mid-2014," which affects Track 2 contentions NYS-25 and NYS-38/RK-TC-5); Licensing Board Order (Establishing Deadline for Motions for New and Amended Contentions) (July 9, 2013) at 2 (unpublished) (setting August 20, 2013 deadline to file new or amended contentions based on the FSEIS Supplement, Vol. 4, published on June 21, 2013, which affects RK-EC-8).

<sup>13</sup> *See* License Renewal Application (Exs. ENT00015A-B).

<sup>14</sup> *Id.* at 1-4. The Nuclear Regulatory Commission (NRC) issued construction permits in 1966 and 1969 and operating licenses in 1973 and 1975 for IP2 and IP3, respectively. IP2 and IP3 employ a pressurized water reactor design with a dry ambient containment. Each unit is licensed for a power output of 3216 megawatts thermal with a gross electrical output of approximately 1080 megawatts electric.

<sup>15</sup> *Id.* at 1-4.

<sup>16</sup> 72 Fed. Reg. at 42,134. *See also* 72 Fed. Reg. 55,834 (Oct. 1, 2007) (extending the deadline for filing requests for hearing or petitions to intervene in this case).

<sup>17</sup> New York State Notice of Intention to Participate and Petition to Intervene (Nov. 30, 2007) [hereinafter New York Petition].

<sup>18</sup> Petition for Leave to Intervene, Request for Hearing and Contentions of Richard Blumenthal, Attorney General of Connecticut, for the License Renewal Proceeding for Indian Point Nuclear Generating Unit Nos. 2 and 3, DPR-26 and DPR-64 (Nov. 30, 2007).

Westchester County, New York (Westchester);<sup>19</sup> the Town of Cortlandt, New York (Cortlandt);<sup>20</sup> the Village of Buchanan, New York (Buchanan);<sup>21</sup> the City of New York (New York City);<sup>22</sup> the New York Affordable Reliable Electricity Alliance (New York AREA);<sup>23</sup> Friends United for Sustainable Energy (FUSE);<sup>24</sup> Hudson River Sloop Clearwater (Clearwater);<sup>25</sup> Connecticut Residents Opposed to Relicensing Indian Point (CRORIP);<sup>26</sup> Westchester Citizen Awareness Network (WestCAN); Rockland County Conservation Association; Sierra Club — Atlantic Chapter; Assemblyman Richard Brodsky; Public Health and Sustainable Energy;<sup>27</sup> and Riverkeeper, Inc. (Riverkeeper).<sup>28</sup> On October 18, 2007, this Board was established to adjudicate the issues raised by the sixteen petitioners.<sup>29</sup>

Early in the proceeding, the petitions for leave to intervene of Buchanan, New York City, and the New York AREA were denied.<sup>30</sup> Although Buchanan and New York City failed to raise admissible contentions, each was eligible to participate in the proceeding as an interested governmental entity pursuant to 10

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<sup>19</sup> Westchester County's Notice of Intention to Participate and Petition to Intervene (Dec. 7, 2007).

<sup>20</sup> Town of Cortlandt Request for Hearing and Petition to Intervene (Nov. 29, 2008).

<sup>21</sup> Village of Buchanan Hearing Request and Petition to Intervene (Nov. 15, 2007).

<sup>22</sup> Amended Petition for Leave to Intervene and Statement of Interest of the City of New York (Nov. 29, 2007).

<sup>23</sup> New York Affordable Reliable Electricity Alliance's Petition to Intervene (Nov. 28, 2007). Petitioner is an agency of the City of New York.

<sup>24</sup> Friends United for Sustainable Energy Superceding Request for Hearing and Petition to Intervene (Dec. 24, 2007).

<sup>25</sup> Hudson River Sloop Clearwater Inc.'s Petition to Intervene and Request for Hearing (Dec. 10, 2007) [hereinafter Clearwater Petition].

<sup>26</sup> Connecticut Residents Opposed to Relicensing of Indian Point and Its Designated Representatives Petition to Intervene and Request for Hearing (Dec. 11, 2007).

<sup>27</sup> Westchester Citizen Awareness Network; Rockland County Conservation Association; Sierra Club — Atlantic Chapter; Assemblyman Richard Brodsky; and Public Health and Sustainable Energy filed their petition jointly. *See* WestCAN Petition for Leave to Intervene with Contentions and Request for Hearing (Dec. 10, 2007).

<sup>28</sup> Riverkeeper, Inc.'s Request for Hearing and Petition to Intervene in the License Renewal Proceeding for the Indian Point Nuclear Power Plant (Nov. 30, 2007) [hereinafter Riverkeeper Petition].

<sup>29</sup> *See* 72 Fed. Reg. 60,394 (Oct. 24, 2007). On April 9, 2012, the Board was reconstituted, substituting Judge Michael F. Kennedy for Judge Kaye D. Lathrop. 77 Fed. Reg. 22,361 (Apr. 13, 2012).

<sup>30</sup> Memorandum and Order (Denying the Village of Buchanan's Hearing Request and Petition to Intervene) (Dec. 5, 2007) (unpublished) [hereinafter Buchanan Order]; Memorandum and Order (Denying the City of New York's Petition for Leave to Intervene) (Dec. 12, 2007) (unpublished) [hereinafter New York City Order]; Memorandum and Order (Denying the New York Affordable Reliable Electricity Alliance's Petition to Intervene) (Dec. 12, 2007) (unpublished).

C.F.R. § 2.315(c), and on December 18, 2008, both were granted this status.<sup>31</sup> On February 1, 2008, the Board struck with prejudice the petition of FUSE for failing to comply with the NRC Rules of Practice and Board orders.<sup>32</sup> On July 31, 2008, the Board struck the joint petition for leave to intervene of WestCAN; Rockland County Conservation Association; Sierra Club — Atlantic Chapter; Assemblyman Richard Brodsky; and Public Health and Sustainable Energy for filing multiple “materially false” certificates of service and making several false representations to the Board and other parties.<sup>33</sup>

Also on July 31, 2008, the Board issued a memorandum and order that (1) granted the requests for hearing and petitions to intervene of New York, Riverkeeper, and Clearwater (collectively, the Intervenors); (2) denied the requests for hearing of CRORIP, Cortlandt, Connecticut, and Westchester; and (3) granted interested governmental entity status pursuant to 10 C.F.R. § 2.315(c) to Cortlandt, Connecticut, and Westchester.<sup>34</sup> The Board admitted fifteen contentions proffered by New York, Riverkeeper, and Clearwater. In addition to the nine contentions discussed in this Decision, the Board also admitted:

1. Contention NYS-24: Challenged the adequacy of Entergy’s AMP for containment structural integrity.
2. Contention NYS-25: Challenged the adequacy of Entergy’s AMP for embrittlement of the reactor pressure vessel and associated internals.
3. Contention NYS-26A: Challenged the adequacy of Entergy’s AMP for managing age-related metal fatigue on key reactor components. (Consolidated with Contention RK-TC-1A.)

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<sup>31</sup> Buchanan Order at 9-10; New York City Order at 8-9; Licensing Board Order (Authorizing Interested Governmental Entities to Participate in This Proceeding) (Granting in Part Riverkeeper’s Motion for Clarification and Reconsideration of the Board’s Ruling in LBP-08-13 Related to the Admissibility of Riverkeeper Contention EC-2) (Denying Riverkeeper’s Request to Admit Amended Contention EC-2 and New Contentions EC-4 and EC-5) (Denying Entergy’s Motion for Reconsideration of the Board’s Decision to Admit Riverkeeper EC-3 and Clearwater Contention EC-1) (Dec. 18, 2008) at 2 (unpublished).

<sup>32</sup> Licensing Board Order (Granting the NRC Staff’s Motion to Strike FUSE’s Superceding Request for Hearing) (Feb. 1, 2008) at 5-6 (unpublished).

<sup>33</sup> Licensing Board Order (Striking WestCAN’s Request for Hearing) (July 31, 2008) (unpublished), *aff’d*, CLI-08-29, 68 NRC 899 (2008).

<sup>34</sup> LBP-08-13, 68 NRC 43, 59 (2008). *See also* Licensing Board Order (Authorizing Interested Governmental Entities to Participate in This Proceeding) (Granting in Part Riverkeeper’s Motion for Clarification and Reconsideration of the Board’s Ruling in LBP-08-13 Related to the Admissibility of Riverkeeper Contention EC-2) (Denying Riverkeeper’s Request to Admit Amended Contention EC-2 and New Contentions EC-4 and EC-5) (Denying Entergy’s Motion for Reconsideration of the Board’s Decision to Admit Riverkeeper EC-3 and Clearwater Contention EC-1) (Dec. 18, 2008) at 2 (unpublished).

4. Contention RK-TC-1A: Challenged the adequacy of Entergy's AMP for managing age-related metal fatigue on key reactor components. (Consolidated with Contention NYS-26A.)
5. Contention RK-EC-3: Challenged the adequacy of Entergy's assessment of the environmental impacts of radionuclide leaks from spent fuel pools. (Consolidated with Contention CW-EC-1.)
6. Contention CW-EC-1: Challenged the adequacy of Entergy's assessment of the environmental impacts of radionuclide leaks from spent fuel pools. (Consolidated with Contention RK-EC-3.)<sup>35</sup>

In addition to these fifteen contentions that were admitted in the July 31, 2008, order, as we describe below, the Board subsequently admitted four additional contentions based on new information that arose during the course of this proceeding.

On June 30, 2010, the Board admitted, in part, contentions NYS-35 and NYS-36.<sup>36</sup> NYS-35 was admitted as a contention of omission calling for completion of the analyses to determine whether the proposed SAMAs were cost-beneficial.<sup>37</sup> NYS-36 addressed SAMAs that were initially deemed cost-beneficial, but appeared dramatically more cost-beneficial in updated analyses.<sup>38</sup> NYS-36 was admitted based on the rationale that the Staff failed to require implementation of the plainly cost-beneficial SAMAs or to explain why no such implementation was required.<sup>39</sup> These contentions were consolidated as NYS-35/36.<sup>40</sup> Entergy and the NRC Staff filed for interlocutory review of the Board's decision admitting NYS-35/36. The Commission denied the petitions because the filings did not meet the established standards for interlocutory review.<sup>41</sup>

On July 6, 2011, the Board admitted RK-EC-8, which alleged that the Staff had failed to consult with the National Marine Fisheries Service as required by the Endangered Species Act and failed to consider the outcome of the consultation process in the issuance of its final supplemental environmental impact statement (FSEIS).<sup>42</sup>

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<sup>35</sup> LBP-08-13, 68 NRC at 218-19. These descriptions are of the initially admitted contentions, which in some cases were amended at a later date.

<sup>36</sup> LBP-10-13, 71 NRC 673, 676 (2010).

<sup>37</sup> *Id.* at 698, 702.

<sup>38</sup> *Id.*

<sup>39</sup> *Id.* at 702.

<sup>40</sup> *Id.*

<sup>41</sup> CLI-10-30, 72 NRC 564, 565 (2010).

<sup>42</sup> Licensing Board Memorandum and Order (Ruling on Pending Motions for Leave to File New and Amended Contentions) (July 6, 2011) at 61, 71 (unpublished).

On November 10, 2011, the Board admitted and consolidated NYS-38/RK-TC-5, which challenged the adequacy of various of Entergy's AMPs with regard to several critical components and systems, including, for example, the AMP for managing metal fatigue and the AMP for managing the effects of aging on the reactor vessel internals.<sup>43</sup>

For the convenience of the parties, Appendix A to this Partial Initial Decision is a list of all admitted contentions including their current status, i.e., settled and dismissed, summary disposition granted, resolved in this Partial Initial Decision, or pending.

#### **B. Prehearing Disposition of Admitted Contentions<sup>44</sup>**

Several admitted contentions were disposed of prior to the evidentiary hearing. On January 26, 2012, the Board approved a settlement agreement between New York and Entergy concerning NYS-24.<sup>45</sup> Finding that the proposed resolution of NYS-24 would avoid unnecessary litigation and would serve the public interest, the Board approved the parties' agreement and dismissed NYS-24.<sup>46</sup> RK-EC-3/CW-EC-1 was also settled by agreement among Riverkeeper, Clearwater, and Entergy.<sup>47</sup> Finding that the resolution of RK-EC-3/CW-EC-1 would enhance the NRC's oversight of Entergy's Radiological Environmental Monitoring Program and would serve the public interest, the Board approved the agreement and dismissed RK-EC-3/CW-EC-1 on October 17, 2012.<sup>48</sup>

On July 14, 2011, the Board ruled on cross-motions for summary disposition

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<sup>43</sup> Licensing Board Memorandum and Order (Admitting New Contention NYS-38/RK-TC-5) (Nov. 10, 2011) at 2, 12 (unpublished).

<sup>44</sup> Other proffered contentions were disposed of by the Board as inadmissible. *See, e.g.*, LBP-08-13, 68 NRC at 71, 73, 163, 181, 196, 209, 217 (rejecting contentions proffered by New York, Riverkeeper, Connecticut, Clearwater, Cortlandt, and Connecticut Residents Opposed to Relicensing Indian Point); Licensing Board Memorandum and Order (Denying Riverkeeper's and Clearwater's Motion for Leave to File New Environmental Contention Regarding NRC's Near-Term Task Force on Fukushima) (Mar. 30, 2012) at 1 (unpublished).

<sup>45</sup> Licensing Board Order (Approving Settlement of Contention NYS-24) (Jan. 26, 2012) at 1-2 (unpublished).

<sup>46</sup> *Id.* at 2.

<sup>47</sup> Joint Motion for Approval of Settlement Agreement and Dismissal of Consolidated Contention Riverkeeper EC-3 and Clearwater EC-1 (Spent Fuel Pool Leaks) (Oct. 12, 2012). Cortlandt did not object to the settlement. *See* E-mail from Victoria Shiah Treanor, Sive Paget & Riesel, P.C., to Anne Siarnacki, Atomic Safety and Licensing Board Law Clerk (Oct. 16, 2012) (Ex. BRD000003).

<sup>48</sup> Licensing Board Consent Order (Approving Settlement of Consolidated Contention Riverkeeper EC-3 and Clearwater EC-1) (Oct. 17, 2012) (unpublished).

concerning Contention NYS-35/36.<sup>49</sup> In granting summary disposition in favor of New York, the Board held that:

under NRC Regulations, the APA [Administrative Procedure Act], and NEPA, Entergy's licenses cannot be renewed unless and until the NRC Staff reviews Entergy's completed SAMA analyses and either incorporates the results of these reviews into the FSEIS or, in the alternative, modifies its FSEIS to provide a valid reason for recommending the renewal of the licenses before the analysis of potentially cost-effective SAMAs is complete and for not requiring the implementation of cost-beneficial SAMAs.<sup>50</sup>

Entergy appealed the Board's decision to the Commission.<sup>51</sup> The Commission declined to review the Board's ruling at that time because it was not final, and Entergy had not met the requirements for interlocutory review.<sup>52</sup> On May 6, 2013, Entergy submitted to the NRC Staff the results of engineering cost estimates for SAMAs that it had previously identified as potentially cost-beneficial.<sup>53</sup> However, to date, the Staff stated that it has not decided whether to revise its FSEIS to elaborate on this analysis.<sup>54</sup> Given the state of the record, unless the Board's July 2011 Order granting summary disposition is vacated, Entergy cannot be issued a renewed license unless and until admissible contentions regarding that analysis have been resolved.<sup>55</sup>

### C. Questions Relating to the Waste Confidence Rule (10 C.F.R. § 51.23)

In November 2009, Clearwater moved for leave to file new contentions relating to the potential environmental and safety impacts of the long-term storage of spent fuel at IPEC.<sup>56</sup> In response, the Board certified to the Commission questions raised by Clearwater's proposed contentions that addressed significant legal and policy issues and challenged the continued viability of the Waste Confidence Rule

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<sup>49</sup> LBP-11-17, 74 NRC 11 (2011).

<sup>50</sup> *Id.* at 27.

<sup>51</sup> Applicant's Petition for Review of LBP-11-17 Granting Summary Disposition of Consolidated Contention NYS-35/36 (July 29, 2011).

<sup>52</sup> CLI-11-14, 74 NRC 801, 813-14 (2011).

<sup>53</sup> NL-13-075, Letter from F. Dacimo, Vice President, Indian Point Energy Center, to NRC Document Control Desk, License Renewal Application — Completed Engineering Project Cost Estimates for SAMAs Previously Identified as Potentially Cost-Beneficial (May 6, 2013).

<sup>54</sup> See NRC Staff's 21st Status Report in Response to the Atomic Safety and Licensing Board's Order of February 16, 2012 (Nov 1, 2013) at 2-3.

<sup>55</sup> LBP-11-17, 74 NRC at 27.

<sup>56</sup> See Hudson River Sloop Clearwater, Inc.'s Motion for Leave to Add a New Contention Based upon New Information (corrected version Nov. 6, 2009).

(10 C.F.R. § 51.23).<sup>57</sup> More specifically, in 2010, the Board requested that the Commission explain how recent developments affecting the proposed Yucca Mountain nuclear waste repository affect the application of section 51.23.<sup>58</sup> In response to our request for guidance, in July 2010, the Commission ordered the Board to deny admission of Clearwater's contentions, stating that the issue was being addressed through generic rulemaking.<sup>59</sup>

Subsequently, a 2012 ruling from the United States Court of Appeals for the District of Columbia Circuit<sup>60</sup> vacated the Commission's Waste Confidence Rule concerning the storage and disposal of high-level waste (10 C.F.R. § 51.23(a)), and remanded the issue to the Commission to generate either a generic analysis that is "forward looking" and has "enough breadth to support the Commission's conclusions"<sup>61</sup> or a site-specific environmental impact statement in all relevant proceedings.<sup>62</sup> New York, Riverkeeper, and Clearwater promptly filed contentions challenging the Staff's reliance on the Waste Confidence Rule in this proceeding.<sup>63</sup> The Commission preemptively responded to these filings, and similar filings in other proceedings, by directing "that these contentions — and any related contentions that may be filed in the near term — be held in abeyance pending . . . further order [of the Commission]."<sup>64</sup> The Commission also held that the NRC "will not issue licenses dependent upon the Waste Confidence Decision or the Temporary Storage Rule until the [D.C. Circuit's] remand is appropriately addressed."<sup>65</sup> Therefore, the Applicant will not be granted renewed licenses until the Commission has reissued its analysis on the storage of nuclear waste — either in a site-specific or generic way.<sup>66</sup>

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<sup>57</sup> Licensing Board Memorandum and Order (Certification to the Commission of a Question Relating to the Continued Viability of 10 C.F.R. § 51.23(b) Arising from Clearwater's Motion for Leave to Admit New Contentions) (Feb. 12, 2010) at 1 (unpublished).

<sup>58</sup> *Id.* at 2.

<sup>59</sup> CLI-10-19, 72 NRC 98, 100 (2010). As directed, the Board denied Clearwater's motion. *See* Licensing Board Order (July 14, 2010) at 1 (unpublished).

<sup>60</sup> *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012).

<sup>61</sup> *Id.* at 483.

<sup>62</sup> *Id.* at 478.

<sup>63</sup> *See* State of New York, Riverkeeper, and Clearwater's Joint Motion for Leave to File a New Contention Concerning the On-Site Storage of Nuclear Waste at Indian Point (July 8, 2012).

<sup>64</sup> *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63, 68-69 (2012). *See also* Licensing Board Order (Holding Contentions NYS-39/RK-EC-9/CW-EC-10 and CW-SC-4 in Abeyance) (Aug. 8, 2012) (unpublished).

<sup>65</sup> *Calvert Cliffs*, CLI-12-16, 76 NRC at 67.

<sup>66</sup> In response to this remand, on September 13, 2013, the NRC Staff published a proposed rule and notice of availability of a draft EIS on waste confidence issues. Comments on the proposed rule and draft EIS are due to be filed by November 27, 2013. Proposed Rule: "Waste Confidence  
(Continued)

## **D. NRC Staff Review**

License renewal requires two concurrent actions by the NRC Staff, an environmental analysis as required by NEPA and a technical review of safety issues as required by the AEA. These actions are primarily governed by NRC regulations in 10 C.F.R. Parts 51 and 54, which respectively set forth the requirements for the environmental review and safety analysis.<sup>67</sup>

### ***1. Safety Evaluation Report and Supplements***

The Safety Evaluation Report (SER) for this license renewal proceeding “summarizes the results of the Staff’s safety review of the LRA and describes the technical details considered in evaluating the safety aspects of the units’ proposed operation for an additional 20 years beyond the term of the current operating licenses.”<sup>68</sup> The SER was “based on the applicant’s LRA, amendments to the LRA, and on its responses to the staff’s requests for additional information.”<sup>69</sup> A draft SER with twenty open items was issued in January 2009.<sup>70</sup> After resolution of those open items,<sup>71</sup> the SER issued in November 2009.<sup>72</sup> In August 2011, the Staff issued a supplement to the SER (SSER, Vol. 1), which encompassed additional information provided by Entergy after the release of the SER and discussed the issues associated with several admitted contentions, including NYS-5 and NYS-6/7.<sup>73</sup>

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— Continued Storage of Spent Nuclear Fuel,” 78 Fed. Reg. 56,776 (Sept. 13, 2013); Draft Waste Confidence Generic Environmental Impact Statement, 78 Fed. Reg. 56,621 (Sept. 13, 2013).

<sup>67</sup> It should be noted that the Commission has stated that, in the context of license renewal, “[t]he Commission’s AEA review under Part 54 does not compromise or limit NEPA.” *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 13 (2001).

<sup>68</sup> Office of Nuclear Reactor Regulation (NRR), Nuclear Regulatory Commission (NRC), Safety Evaluation Report (SER) Related to the License Renewal of Indian Point Nuclear Generating Units Nos. 2 and 3 (Nov. 2009) at 1-2 (Ex. NYS00326A) [hereinafter SER].

<sup>69</sup> *Id.*

<sup>70</sup> NRR, NRC, SER with Open Items Related to the License Renewal of Indian Point Nuclear Generating Unit Nos. 2 and 3 (Jan. 2009) at iii (ADAMS Accession No. ML090150571) [hereinafter DSER].

<sup>71</sup> SER at iii (Ex. NYS00326A).

<sup>72</sup> See SER (Exs. NYS00326A-F).

<sup>73</sup> NRR, NRC, SER Related to the License Renewal of Indian Point Nuclear Generating Units Nos. 2 and 3, Supp. 1 at 1-1, 3-1 to -5, 3-5 to -9 (Aug. 2011) (Ex. NYS000160). The Staff informed the Board that the SSER, Vol. 1 would not be issued with open items and that any other SSER supplements likewise would be issued in their finalized form. Tr. at 1006-07 (Mr. Turk for the NRC Staff). At this juncture, the first citation to the proceeding’s transcript, we note a transcript pagination error that occurred in 2009. On January 14, 2009, the Board conducted a telephone conference, which

(Continued)

In January 2012, the Staff first informed the Board of a recent development that it considered relevant to and which the Staff believed could affect litigation of Contention NYS-25.<sup>74</sup> Based on responses to Requests for Additional Information (RAIs), the Staff indicated that its “review of this matter may be the subject of a [second] . . . SER for the Indian Point license renewal application.”<sup>75</sup> Confirmation that the Staff expected to issue a second supplemental SER came in July 2012 — when the Staff informed the Board that it expected to complete its review of Entergy’s Reactor Vessel Internals Program, and to issue a second Supplement to the SER in December 2012.<sup>76</sup> That estimated release date was extended several times. At the time of this Decision’s issuance, the NRC Staff indicated that it expects to issue the SER Supplement in “early- to mid-2014.”<sup>77</sup>

## **2. Supplemental Environmental Impact Statement**

NEPA requires “federal agencies such as the [Nuclear Regulatory] Commission to examine and report on the environmental consequences of their actions.”<sup>78</sup> Under NEPA, federal agencies must prepare an Environmental Impact Statement (EIS) before taking a “major Federal action . . . significantly affecting the quality of the human environment.”<sup>79</sup> The reissuance of a reactor license is a major federal action, requiring such a review.<sup>80</sup>

To meet this responsibility under NEPA, the Staff considered the environmental impacts of renewing a nuclear operating license for an additional 20 years in the Generic Environmental Impact Statement for License Renewal of Nuclear Plants

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was transcribed on pages 748 through 833. On August 24, 2009, we conducted another telephone conference, which was transcribed on pages 748 to 794. Because two sets of pages were labeled 748 to 794, all transcripts originating after January 14, 2009, contain a 46-page mispagination. Rather than create additional confusion attempting to repaginate the transcript of this proceeding, we simply note the error here for clarity.

<sup>74</sup> Letter from Sherwin E. Turk, Counsel for the NRC Staff, to Lawrence G. McDade, Chair, Dr. Kaye Lathrop, and Dr. Richard Wardwell, Atomic Safety and Licensing Board (Jan. 27, 2012) at 1.

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

<sup>76</sup> NRC Staff’s Fifth Status Report in Response to the Atomic Safety and Licensing Board’s Order of February 16, 2012 (July 2, 2012) at 2.

<sup>77</sup> As noted above in note 12, the most recent estimate proffered by the Staff for the publication of the SER supplement is “early- to mid-2014.”

<sup>78</sup> *New York v. NRC*, 681 F.3d at 476.

<sup>79</sup> 42 U.S.C. § 4332(2)(C). In the alternative, the agency can conduct an environmental assessment and make a finding of no significant impact. *New York v. NRC*, 681 F.3d at 476 (citing *Sierra Club v. Department of Transportation*, 753 F.2d 120, 127 (D.C. Cir. 1985)).

<sup>80</sup> *New York v. NRC*, 589 F.3d 551, 553 (2d Cir. 2009).

(GEIS).<sup>81</sup> The GEIS covers a generic review of sixty-nine issues that apply to license renewal at all plants.<sup>82</sup> The Commission also identified twenty-three issues that must be evaluated in a site-specific manner through a supplement to the GEIS — to the extent that each issue is relevant to the plant applying for the license.<sup>83</sup> In December 2008, the Staff released the Draft Supplemental Environmental Impact Statement (DSEIS), which preliminarily recommended preserving the option of license renewal for energy planning decisionmakers.<sup>84</sup> The document also provided an opportunity for public comment on the Staff’s findings.<sup>85</sup> In December 2010, the Staff published its FSEIS for License Renewal of Nuclear Plants, which recommended “that the Commission determine that the adverse environmental impacts of license renewals for IP2 and IP3 are not so great that not preserving the option of license renewal for energy planning decision makers would be unreasonable.”<sup>86</sup>

In late 2011, the Staff announced that it would be releasing an additional supplement to the GEIS — specifically to address the issues raised by Contention RK-EC-8.<sup>87</sup> The Board held in abeyance the submissions of evidence concerning that contention.<sup>88</sup> On June 26, 2012, the Staff released the draft version of this additional supplement.<sup>89</sup> The final version, released on June 20, 2013, affirmed the Staff’s initial assessment that adverse environmental impacts should not foreclose consideration of the renewal of the operating licenses for IP2 and IP3.<sup>90</sup> On August 20, 2013, Riverkeeper filed a motion for leave to file an amended contention RK-EC-8.<sup>91</sup> On October 1, 2013, Entergy and NRC Staff filed their

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<sup>81</sup> See Office of Nuclear Regulatory Research (RES), NRC, Generic Environmental Impact Statement for License Renewal of Nuclear Plants (GEIS) (NUREG-1437) (May 1996) (Exs. NYS00131A-I) [hereinafter GEIS].

<sup>82</sup> NRR, NRC, GEIS, Supp. 38, Regarding Indian Point Nuclear Generating Units Nos. 2 and 3, Draft Report for Comment (NUREG-1437) at iii (Dec. 2008) (Ex. NYS00132A).

<sup>83</sup> *Id.*

<sup>84</sup> *Id.* at iv.

<sup>85</sup> *Id.* at ii.

<sup>86</sup> NRR, NRC, GEIS, Supp. 38, Regarding Indian Point Nuclear Generating Units Nos. 2 and 3, Final Report (NUREG-1437) at xix (Dec. 2010) (Ex. NYS00133A) [hereinafter FSEIS].

<sup>87</sup> Tr. at 1011 (Mr. Turk for the NRC Staff).

<sup>88</sup> Licensing Board Order (Dec. 14, 2011) at 2 (unpublished).

<sup>89</sup> NRR, NRC, GEIS, Supp. 38, Vol. 4 Regarding Indian Point Nuclear Generating Units Nos. 2 and 3, Draft Report for Comment (NUREG-1437) (June 2012) (ADAMS Accession No. ML12178A662).

<sup>90</sup> NRR, NRC, GEIS, Supp. 38, Vol. 4 Regarding Indian Point Nuclear Generating Units Nos. 2 and 3, Final Report (NUREG-1437) at xix (June 2013) (ADAMS Accession No. ML13162A616). The Board gave the parties until August 20, 2013, to file new or amended contentions based on this FSEIS Supplement. See Licensing Board Order (Establishing Deadline for Motions for New and Amended Contentions) (July 9, 2013) at 2 (unpublished).

<sup>91</sup> Riverkeeper, Inc. Consolidated Motion for Leave to File Amended Contention RK-EC-8A and Amended Contention RK-EC-8A (Aug. 20, 2013).

answers to this motion.<sup>92</sup> On October 8, 2013, Riverkeeper filed a combined reply to the NRC Staff and Entergy's answers.<sup>93</sup> Riverkeeper's motion is currently pending before the Board.

## **E. Other Prehearing Rulings and Activities**

### ***1. Site Visit***

On May 8, 2012, the Board conducted a site visit at IPEC, where we viewed areas of IPEC that appeared to be relevant to the admitted contentions.<sup>94</sup> The purpose of the visit was for the Board "to gain an appreciation for the physical configuration of the key plant components and to focus on specific elements discussed in the contentions that are external to the reactors at Indian Point."<sup>95</sup>

### ***2. Written Limited Appearance Statements***

As provided for in 10 C.F.R. § 2.315(a), the Board permitted any person who was not a party to the proceeding to submit written limited appearance statements concerning the issues in this proceeding.<sup>96</sup> The Board cautioned that "[t]hese statements do not constitute evidence but may assist the Board and/or parties in defining the issues being considered."<sup>97</sup> The Board received over 700 written limited appearance statements via mail, fax, and e-mail. The extraordinary volume of these letters, both in favor of and against the relicensing of IP2 and IP3, demonstrates the significant interest of the surrounding communities in this proceeding and citizen concerns with relicensing on issues as diverse as taxes, education, livelihood, safety, and air quality.<sup>98</sup>

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<sup>92</sup> Entergy's Answer to Riverkeeper, Inc.'s Consolidated Motion for Leave to File Amended Contention RK-EC-8A and Amended Contention RK-EC-8A (Endangered Aquatic Species) (Oct. 1, 2013); NRC Staff's Answer to Riverkeeper, Inc.'s Consolidated Motion for Leave to File Amended Contention RK-EC-8A, and Amended Contention RK-EC-8A (Oct. 1, 2013).

<sup>93</sup> Riverkeeper Inc. Combined Reply to NRC Staff and Entergy Answers to Riverkeeper's Motion for Leave to File Amended Contention RK-EC-8A and Amended Contention RK-EC-8A (Oct. 8, 2013).

<sup>94</sup> Licensing Board Notice (Scheduling Site Visit and Pre-Hearing Conference Call) (Apr. 5, 2012) at 1 (unpublished).

<sup>95</sup> *Id.* at 2; *see also* Licensing Board Order (Memorializing Items Discussed at April 16, 2012 Pre-Hearing Conference) (Apr. 18, 2012) at 4-6 (unpublished).

<sup>96</sup> 77 Fed. Reg. at 36,016. *See also* 10 C.F.R. § 2.315(a).

<sup>97</sup> 77 Fed. Reg. at 36,016.

<sup>98</sup> Copies of these letters can be viewed in the NRC's Electronic Hearing Docket, by opening the Indian\_PT\_2&3\_50-247&50-286-LR folder, followed by Indian PT Pleadings subfolder, and then the *(Continued)*

## F. The Evidentiary Hearing

### 1. Scheduling the Hearing

As written testimony and evidence began to be offered on most of the contentions in late 2011, and early 2012, the Board considered the best means to conduct the evidentiary hearing in light of the Staff's supplemental reviews and evolving information on some contentions. Of particular concern was 10 C.F.R. § 2.332(d), which requires that a presiding officer "take into consideration the NRC staff's projected schedule for completion of its safety and environmental evaluations to ensure that the hearing schedule does not adversely impact the staff's ability to complete its reviews in a timely manner."<sup>99</sup> The regulation continues:

[h]earings on safety issues may be commenced before publication of the NRC staff's safety evaluation upon a finding . . . that commencing the hearings at that time would expedite the proceeding. Where an environmental impact statement (EIS) is involved, hearings on environmental issues addressed in the EIS may not commence before the issuance of the final EIS.<sup>100</sup>

In light of this regulation and the Staff's ongoing supplemental reviews, the Board first "directed any participant objecting [to the Board's suggested order of addressing the contentions at hearing] pursuant to 10 C.F.R. § 2.332(d) or otherwise to file a motion stating and explaining its objection no later than May 1, 2012."<sup>101</sup> After receiving no objections from the parties, the Board asked the NRC Staff to address the appropriate method for conducting a hearing where some contentions are clearly ripe for resolution, while others are not.<sup>102</sup> The Staff asserted that section 2.332(d) "does not bar the commencement of evidentiary hearings, at least with respect to issues that will not be addressed in the Supplement, since the Staff's evaluation of those issues [was] 'final.'"<sup>103</sup> Riverkeeper objected to the Staff's interpretation of section 2.332(d),<sup>104</sup> while New York stated that final federal agency action is precluded until the EIS process

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Limited Appearance Statements subfolder. See Electronic Hearing Docket, <http://ehd1.nrc.gov/ehd/> (last visited July 9, 2013).

<sup>99</sup> 10 C.F.R. § 2.332(d).

<sup>100</sup> *Id.*

<sup>101</sup> Licensing Board Order (Memorializing Items Discussed at April 16, 2012 Pre-Hearing Conference) (Apr. 18, 2012) at 3-4 (unpublished).

<sup>102</sup> Licensing Board Order (Ordering the NRC Staff to Address Board Questions) (June 7, 2012) (unpublished).

<sup>103</sup> NRC Staff's Statement in Response to the Atomic Safety and Licensing Board's Order of June 7, 2012 (June 18, 2012) at 9.

<sup>104</sup> Riverkeeper Responses to NRC Staff Answers to ASLB Questions (July 6, 2012) at 8-10.

is complete.<sup>105</sup> The Board ultimately determined that, despite the NRC Staff's ongoing safety and environmental reviews, it was efficient to proceed to the evidentiary hearing prior to the issuance of the Staff's additional environmental and safety review documents. In reaching this conclusion, the Board found that the continued Staff reviews would not implicate any of the Track 1 contentions.<sup>106</sup>

In June 2012, the Board issued a Notice of Hearing which announced that the Board would begin taking oral testimony on October 15, 2012, in Westchester County, New York.<sup>107</sup> The notice selected ten contentions to be heard on October 15, 16, 17, 18, 22, 23, and 24, 2012.<sup>108</sup> The Board also noted that it planned to reconvene hearings on December 10 through 14, 2012, as needed.<sup>109</sup> In late July, 2012, the Board notified the parties that a venue had been selected and that the October and December sessions would be conducted at the DoubleTree Hotel in Tarrytown, New York.<sup>110</sup>

## **2. Prehearing Filings and Hearing Procedures**

The Board's Initial Scheduling Order set out the basic framework for the filing of written testimony and evidentiary exhibits.<sup>111</sup> Pursuant to the Scheduling Order, the Intervenors timely filed their initial written statements of position, written testimony, and exhibits on a contention-by-contestation basis by late 2011.<sup>112</sup> After a brief extension, the NRC Staff and Entergy filed their statements of position,

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<sup>105</sup> Letter from Janice A. Dean, Assistant Attorney General, to Lawrence G. McDade, Richard E. Wardwell, and Michael F. Kennedy, Atomic Safety and Licensing Board (July 6, 2012) at 2. New York's concern has been addressed by the Commission in CLI-12-16, where the Commission stated that the NRC would not issue final licenses dependent on the Waste Confidence Decision or the Temporary Storage Rule until the District of Columbia Circuit's remand was addressed. *See Calvert Cliffs*, CLI-12-16, 76 NRC at 67. As a result, the Commission urged all licensing reviews and proceedings to move forward on all other issues. *Id.*

<sup>106</sup> 77 Fed. Reg. at 36,016.

<sup>107</sup> *Id.*

<sup>108</sup> *Id.*

<sup>109</sup> *Id.*

<sup>110</sup> Licensing Board Notice (Evidentiary Hearing Venue) (July 27, 2012) at 1 (unpublished).

<sup>111</sup> *See* Licensing Board Scheduling Order (July 1, 2010) at 13-16 (unpublished) [hereinafter Scheduling Order]. This order has occasionally been modified. *See, e.g.*, Licensing Board Order (Granting Unopposed Motion by the State of New York and Riverkeeper, Inc. to Amend the Scheduling Order) (Nov. 17, 2011) at 1 (unpublished); Licensing Board Amended Scheduling Order (June 7, 2011) at 1-3 (unpublished); Licensing Board Order (Granting Unopposed Extension of Time) (May 16, 2012) at 1 (unpublished); Licensing Board Order (Granting NRC Staff's Unopposed Time Extension Motion and Directing Filing of Status Updates) (Feb. 16, 2012) at 1 (unpublished).

<sup>112</sup> Scheduling Order at 13.

testimony, and exhibits in March 2012.<sup>113</sup> The Intervenors followed with rebuttal testimony and exhibits.<sup>114</sup> The Board also received a submission by Connecticut, which filed a statement of position as an interested governmental entity.<sup>115</sup> On each round of filings, the parties submitted motions *in limine* within 30 days of the submittal of new or revised exhibits and testimony.<sup>116</sup> Ultimately, the Board received, admitted, and reviewed over a thousand exhibits, containing tens of thousands of pages, which addressed the admitted contentions in this proceeding.<sup>117</sup>

The parties also timely filed proposed questions for the Board to ask at the evidentiary hearing, pursuant to 10 C.F.R. § 2.1207(a)(3).<sup>118</sup> On August 8, 2012,<sup>119</sup> New York filed a motion for cross-examination pursuant to section 274(l) of the AEA, 42 U.S.C. § 2021(l).<sup>120</sup> Only New York moved for cross-examination.

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<sup>113</sup> Prior to granting the Staff's request for an extension, the Board required the Staff to identify the contentions on which it intended to participate as a party to this proceeding, and to state which party's position the Staff intended to support on any such contention. Licensing Board Order (Requesting Information from the NRC Staff and All Participants) (Feb. 3, 2012) at 1 (unpublished). The Staff responded that "it intends to participate as a party in this adjudicatory proceeding with respect to all admitted contentions." 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 also stated that "the Staff's position is likely to support Entergy's positions on the admitted contentions." *Id.* The Board then granted the Staff's request for an extension of time to file its evidentiary submissions. Licensing Board Order (Granting NRC Staff's Unopposed Time Extension Motion and Directing Filing of Status Updates) (Feb. 16, 2012) at 1 (unpublished).

<sup>114</sup> Scheduling Order at 13.

<sup>115</sup> See *id.* at 14-15; see also Statement of Position of the Attorney General of Connecticut (June 28, 2012).

<sup>116</sup> Scheduling Order at 15. Most motions *in limine* were denied in whole or in part. For a complete review of these motions see the Electronic Hearing Docket for this proceeding.

<sup>117</sup> Due to the volume of exhibits, and frequent revisions of filings from all parties, the Board noted several corrections to the parties' exhibit lists throughout the proceeding. See, e.g., Licensing Board Order (Concerning Evidentiary Submission) (Oct. 4, 2012) at 2-3 (unpublished). Appendix B to this Initial Decision is a list of the admitted exhibits that the Board viewed as relevant to the Track 1 contentions, which is being issued in conjunction with this Partial Initial Decision but will not be published as part of this document. Appendix B will, however, be available on the NRC's Electronic Hearing Docket and also on ADAMS (The NRC's Agencywide Documents Access and Management System).

<sup>118</sup> Pursuant to 10 C.F.R. § 2.1207(a)(3)(iii), the proposed questions filed by all parties will be publicly released by Order of this Board 30 days after this Partial Initial Decision. These questions will be available on the NRC's Electronic Hearing Docket and also on ADAMS.

<sup>119</sup> The deadline for filing motions for cross-examination, requests for a Subpart G proceeding, and proposed questions for the Board to ask on all contentions scheduled to be heard in October or December was August 29, 2012. See Licensing Board Order (Memorializing Items Discussed During the July 9, 2012, Status Conference) (July 12, 2012) at 2 (unpublished).

<sup>120</sup> State of New York Motion to Implement Statutorily-Granted Cross-Examination Rights Under Atomic Energy Act § 274(l) (Aug. 8, 2012).

On September 21, 2012, the Board granted, in part, New York’s motion for cross-examination holding that New York would have a reasonable opportunity to examine witnesses pursuant to NRC regulations.<sup>121</sup> Entergy filed an “emergency petition for interlocutory review” of that order.<sup>122</sup>

The Commission denied Entergy’s request for interlocutory review and emphasized that it expected the Board to provide all parties with “a full and fair opportunity to request cross-examination, and . . . [expected] that the Board will act on any such requests fairly and evenhandedly . . . .”<sup>123</sup> The Commission emphasized that cross-examination “should be reserved for cases where the Board determines that it is truly necessary to develop a sound record.”<sup>124</sup> Consistent with the Commission’s guidance, the Board gave all parties the opportunity to conduct brief, pointed examination of witnesses at the evidentiary hearing, as necessary to develop a sound record.<sup>125</sup>

The parties were permitted to request that specific contentions be handled pursuant to Subpart G procedures pursuant to 10 C.F.R. § 2.310(d).<sup>126</sup> No such requests were filed, and the evidentiary hearing on all admitted contentions was governed by the procedures set forth in 10 C.F.R. Part 2, Subpart L, 10 C.F.R. §§ 2.1200-2.1213.

#### G. Track 1 and Track 2 Contentions

For clarity, we repeat that this Partial Initial Decision resolves only “Track 1” contentions. Track 1 contentions are RK-TC-2, NYS-5, NYS-6/7, NYS-8, NYS-12C, NYS-16B, NYS-17B, NYS-37, and CW-EC-3A. This Partial Initial Decision does not address “Track 2” contentions, which are NYS-25, NYS-26/RK-TC-1B, NYS-38/RK-TC-5, and RK-EC-8.<sup>127</sup>

As noted above, the evidentiary hearing on the Track 2 contentions was deferred pending the publication of a forthcoming SER Supplement and the recently

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<sup>121</sup> Licensing Board Order (Order Granting, in Part, New York’s Motion for Cross Examination) (Sept. 21, 2012) at 5-6 (unpublished). *See also* Licensing Board Errata (Regarding Order Granting, in Part, New York’s Motion for Cross Examination) (Sept. 25, 2012) (unpublished).

<sup>122</sup> Entergy’s Emergency Petition for Interlocutory Review of Board Order Granting Cross-Examination to New York State and Request for Expedited Briefing (Sept. 28, 2012).

<sup>123</sup> CLI-12-18, 76 NRC 371, 372, 375 (2012).

<sup>124</sup> *Id.* at 376.

<sup>125</sup> *See, e.g.*, Tr. at 1843-92.

<sup>126</sup> Scheduling Order at 17.

<sup>127</sup> *See* Tr. at 4539-45 (Judge McDade discussing Track 2 contentions); 77 Fed. Reg. at 36,016 n.14 (discussing posture of NYS-25, NYS-26B/RK-TC-1B, NYS-38/RK-TC-5, and RK-EC-8).

released FSEIS Supplement.<sup>128</sup> Regarding the forthcoming SER Supplement, which affects contentions NYS-25 and NYS-38/RK-TC-5, the Staff is currently unable to provide an exact date for its issuance.<sup>129</sup> Regarding the recently released FSEIS Supplement, which is limited to the subject area addressed in RK-EC-8, as noted at page 273, above, Riverkeeper filed a timely motion to amend RK-EC-8, which is pending before the Board.<sup>130</sup> Additionally, at the request of the NRC Staff, NYS-26/RK-TC-1B was delayed to coincide with the other Track 2 contentions because of witness availability issues.<sup>131</sup>

## **II. GENERAL LEGAL STANDARDS APPLICABLE TO LICENSE RENEWAL**

### **A. Burden of Proof**

Generally, an applicant has the burden of proof in a licensing proceeding.<sup>132</sup> However, while “[i]t is well established that the Applicant carries the burden of proof on safety issues,”<sup>133</sup> in the environmental context, the burden is slightly different, as the NRC, and not the applicant, has the overall burden of complying with NEPA.<sup>134</sup> Despite the ability of both the Staff and applicant to present evidence and witnesses on environmental issues, “the ultimate issue in determining NEPA compliance is the adequacy of the Staff’s environmental review, not the applicant’s Environmental Report.”<sup>135</sup>

### **B. The License Renewal Process: Safety Issues**

Forty-year operating licenses, like Entergy’s for IP2 and IP3, can be renewed

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<sup>128</sup> See NRC Staff’s 17th Status Report in Response to the Atomic Safety and Licensing Board’s Order of February 16, 2012 (July 1, 2013) at 1-3.

<sup>129</sup> NRC Staff’s 21st Status Report in Response to the Atomic Safety and Licensing Board’s Order of February 16, 2012 (Nov. 1, 2013).

<sup>130</sup> See Riverkeeper, Inc. Consolidated Motion for Leave to File Amended Contention RK-EC-8A and Amended Contention RK-EC-8A (Aug. 20, 2013).

<sup>131</sup> See Licensing Board Order (Evidentiary Hearing Administrative Matters) (Sept. 14, 2012) at 1 (unpublished) (stating that “due to this witness unavailability, the Board will not address NYS-26 . . . during the Track 1 Evidentiary Hearing.”)

<sup>132</sup> 10 C.F.R. § 2.325.

<sup>133</sup> Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1048 (1983) (citing Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-283, 2 NRC 11, 17 (1975)).

<sup>134</sup> *Id.* at 1049.

<sup>135</sup> Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39, 61 (2012).

for an additional 20 years, pursuant to the AEA.<sup>136</sup> However, “[t]he issues and concerns involved in an extended 20 years of operation are not identical to the issues reviewed when a reactor facility is first built and licensed.”<sup>137</sup> Part 54 of the NRC’s regulations define the safety issues that can be raised in a license renewal proceeding and limits them to “the most significant overall safety concern posed by extended reactor operation — the detrimental effects of aging.”<sup>138</sup> Accordingly, Part 54 requires that applicants demonstrate that they have programs in place that will effectively manage the effects of aging for specific types of structures and components during the period of extended operation (PEO).<sup>139</sup> To this end, section 54.21(a) requires that each application contain an integrated plant assessment (IPA) that according to the Commission, “is a detailed assessment, conducted at ‘a component and structure level,’ rather than at a more generalized ‘system level.’”<sup>140</sup> The IPA requires that applicants demonstrate that systems, structures, and components (SSCs) will continue to perform their intended functions during the PEO.<sup>141</sup> This aging management review, however, only covers SSCs, which “perform their intended function without moving parts or without a change in configuration or properties.”<sup>142</sup> The Commission has referred to these as “passive”<sup>143</sup> SSCs, adding that the passive SSCs are subject to an aging management review only if they are “long-lived” — that is, not subject to replacement based on a qualified life or specified time period.<sup>144</sup> Thus, the aging management review consists of identifying the aging effects, and the AMPs which will manage aging effects and demonstrate that passive, long-lived SSCs will perform their intended functions during the PEO.<sup>145</sup>

Part 54 of 10 C.F.R. also requires applicants to reassess any time-limited aging analyses (TLAAs) that were “based upon a particular time period, such as . . . an assumed service life of a specific number of years or some period of operation defined by the original” 40-year license term.<sup>146</sup> The reassessment of TLAAs must: “(1) show that the earlier analysis will remain valid for the extended

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<sup>136</sup> 42 U.S.C. § 2133 (2012).

<sup>137</sup> *Turkey Point*, CLI-01-17, 54 NRC at 7; see also *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), LBP-08-25, 68 NRC 763, 785-89 (2008) (providing an explanation of the general legal standards applicable to license renewal).

<sup>138</sup> *Id.*

<sup>139</sup> 10 C.F.R. §§ 54.21(a), 54.29.

<sup>140</sup> *Turkey Point*, CLI-01-17, 54 NRC at 8.

<sup>141</sup> See 10 C.F.R. § 54.21(a)(3).

<sup>142</sup> *Id.* § 54.21(a)(1)(i).

<sup>143</sup> *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-08-23, 68 NRC 461, 466 (2008).

<sup>144</sup> *Id.*

<sup>145</sup> 10 C.F.R. § 54.21(a); *Turkey Point*, CLI-01-17, 54 NRC at 8.

<sup>146</sup> *Turkey Point*, CLI-01-17, 54 NRC at 8.

operation period; or (2) modify and extend the analysis to apply to a longer term, such as 60 years; or (3) otherwise demonstrate that the effects of aging will be adequately managed in the renewal term.”<sup>147</sup>

License renewal safety reviews are generally limited to these issues because the NRC recognizes that it “has the ongoing responsibility to oversee the safety and security of operating nuclear reactors,” and “maintains an aggressive and ongoing program to oversee plant operation.”<sup>148</sup> Therefore, for active SSCs, the Commission chose to exempt from license renewal challenges to a plant’s operational activities covered by its current licensing basis (CLB). The CLB encompasses “the various Commission requirements applicable to a specific plant that are in effect at the time of the license renewal application,”<sup>149</sup> as well as the regulatory requirements of Parts 2, 19, 20, 21, 30, 40, 50, 55, 72, 73, and 100 with which the applicant must comply.<sup>150</sup>

In establishing its license renewal process, “the Commission did not believe it necessary or appropriate to throw open the full gamut of provisions in a plant’s [CLB] to re-analysis” because those are “effectively addressed and maintained by ongoing agency oversight, review, and enforcement.”<sup>151</sup> While the CLB is thus not evaluated in the license renewal process, its provisions and protections remain in effect, complementing and supplementing any additional measures added due to the aging management requirements of 10 C.F.R. § 54.21(a) and (c).

After an applicant has met the requirements of 10 C.F.R. § 54.21(a) and (c), section 54.29 states that a renewed license may be issued if the Commission finds that:

(a) Actions have been identified and have been or will be taken with respect to the matters identified in paragraphs (a)(1) and (a)(2) of this section, such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the CLB, and that any changes made to the plant’s CLB in order to comply with this paragraph are in accord with the Act and the Commission’s regulations. These matters are:

(1) managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under § 54.21(a)(1); and

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<sup>147</sup> *Id.*; see also 10 C.F.R. § 54.21(c).

<sup>148</sup> *Turkey Point*, CLI-01-17, 54 NRC at 8.

<sup>149</sup> *Id.* at 9. The CLB consists of license requirements, including license conditions and technical specifications. It also includes plant-specific design basis information and any orders, exemptions, and licensee commitments that are part of the docket for the plant’s license. *Id.*; see also 10 C.F.R. § 54.3.

<sup>150</sup> 10 C.F.R. § 54.3.

<sup>151</sup> *Turkey Point*, CLI-01-17, 54 NRC at 9.

- (2) time-limited aging analyses that have been identified to require review under § 54.21(c).
- (b) Any applicable requirements of subpart A of 10 CFR Part 51 have been satisfied.
- (c) Any matters raised under § 2.335 have been addressed.<sup>152</sup>

The Commission has cautioned that “[r]easonable assurance” is not quantified as equivalent to a 95% (or any other percent) confidence level, but is based on sound technical judgment of the particulars of a case and on compliance with our regulations.”<sup>153</sup> To meet this reasonable assurance standard, the applicant “must make a showing that meets the ‘preponderance of the evidence’ threshold of compliance with the applicable regulations . . . .”<sup>154</sup>

The Staff’s safety review for license renewal applications is guided by two documents: NUREG-1800, “Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants” (SRP-LR), and NUREG-1801, “Generic Aging Lessons Learned Report,” (GALL).<sup>155</sup> NUREG-1800 (SRP-LR) provides the NRC Staff with guidance on how to conduct safety reviews of license renewal applications.<sup>156</sup> The SRP-LR seeks “to ensure the quality and uniformity of staff reviews and to present a well-defined base from which to evaluate applicant programs and activities for the period of extended operation.”<sup>157</sup> GALL is a technical basis document for the SRP-LR, providing guidance to the Staff in its review.<sup>158</sup> According to GALL, in choosing its AMP for any given SSC, an applicant may either use an AMP that is consistent with GALL, or prepare a plant-specific AMP.<sup>159</sup>

According to the Commission, the approach taken by the applicant impacts the license renewal requirements:

An applicant for license renewal “may reference [GALL] . . . to demonstrate that the programs at the applicant’s facility correspond to those reviewed and approved” therein, and the applicant must ensure and certify that its programs correspond to those reviewed in [GALL]. In other words, the license renewal applicant’s use of an

<sup>152</sup> 10 C.F.R. § 54.29.

<sup>153</sup> *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 263 (2009).

<sup>154</sup> *Id.*

<sup>155</sup> See *Oyster Creek*, CLI-08-23, 68 NRC at 466. Revision 1 of the SRP-LR and revision 1 of GALL (GALL-1) are exhibits NYS000195 and NYS00146A-C, respectively.

<sup>156</sup> NRR, NRC, Standard Review Plan for Review of License Renewal Application for Nuclear Power Plants (NUREG-1800) at iii (Sept. 2005) [hereinafter SRP-LR Rev. 1] (Ex. NYS000195).

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

<sup>158</sup> *Id.* at 3.0-1.

<sup>159</sup> *Id.* at 3.0-3.

aging management program identified in [GALL] constitutes reasonable assurance that it will manage the targeted aging effect during the renewal period. If the applicant uses a different method for managing the effects of aging for particular SSCs at its plant, then the applicant should demonstrate to the Staff reviewers that its program includes the ten elements cited in [GALL] and will likewise be effective. In addition, many plants will have plant-specific aging management programs for which there is no corresponding program in [GALL]. For each aging management program, the application gives a brief description of the licensee's operating experience in implementing that program.<sup>160</sup>

Though a commitment to implement an AMP consistent with GALL is an “acceptable method for compliance with 10 C.F.R. § 54.21(c)(1)(iii),”<sup>161</sup> the Commission has emphasized that “such a commitment does not absolve the applicant from demonstrating, *prior* to issuance of a renewed license, that its AMP is indeed consistent with the GALL Report.”<sup>162</sup> The Commission has emphasized that the NRC does “not simply take the applicant at its word” and that the Staff must “draw its own independent conclusion as to whether the applicant’s programs are in fact consistent with the GALL Report.”<sup>163</sup> Moreover, the Staff’s independent finding of consistency with GALL does not prevent the Board from reviewing the substance of the applicant’s commitments, and exploring deficiencies alleged by intervenors in our proceedings.<sup>164</sup> This includes any specific allegations that a reference to GALL lacks the specificity to demonstrate an adequate AMP.<sup>165</sup>

In December 2010, the Staff issued Revision 2 of GALL (GALL-2), which modified the prior version “based on further lessons learned from the reviews of LRAs, operating experience obtained after Revision 1 was issued, and other public input including industry comments.”<sup>166</sup> Because Revision 2 was released after Entergy’s LRA was submitted and after the Staff conducted its initial review, the basis of both the LRA and Staff’s initial SER was GALL-1.<sup>167</sup> The use of

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<sup>160</sup> *Oyster Creek*, CLI-08-23, 68 NRC at 468 (citations omitted).

<sup>161</sup> *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 36 (2010).

<sup>162</sup> *Id.* at 37 (emphasis in the original).

<sup>163</sup> *Id.*

<sup>164</sup> *Id.* at 38.

<sup>165</sup> *Id.*; see also *NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 315 (2012) (stating that a reference to “an AMP in the GALL Report does not insulate that program from challenge in litigation.”).

<sup>166</sup> NRR, NRC, Generic Aging Lessons Learned (GALL) Report Rev. 2 (NUREG-1801) at 3 (Dec. 2010) (Ex. NYS00147A) [hereinafter GALL-2].

<sup>167</sup> See, e.g., NRC Staff’s Statement of Position on Contention NYS-5 (Buried Pipes and Tanks) (Dec. 7, 2012) at 7 n.5 (Ex. NRCR20015); Entergy’s Statement of Position Regarding Contention NYS-5 (Buried Piping and Tanks) (Dec. 7, 2012) at 9-10 (Ex. ENTR20372).

the older version appears acceptable for the following two reasons: (1) GALL is a nonbinding guidance document which (in the case of either revision) does not have the force of the law;<sup>168</sup> and (2) the Commission has generally deemed acceptable later revisions to the LRA that bring the plant into compliance with the GALL-2.<sup>169</sup> Thus, the Applicant's and Staff's use of GALL is not required by the regulations, and each AMP that Intervenors allege deficient must be evaluated in the context of the larger evidentiary record of this proceeding, which includes both GALL-1 and GALL-2.

### C. The License Renewal Process: Environmental/NEPA Issues

In the license renewal context, the scope of the Staff's NEPA review is substantially different from, and broader than, the scope of the Staff's review of Part 54 safety issues. The Commission has clearly stated that its "AEA review under Part 54 does not compromise or limit NEPA."<sup>170</sup> Although the Part 54 review focuses on the management of aging on a limited set of "passive" systems, structures, and components, the NEPA review is not so restricted. As the Commission has noted, "the two inquiries are analytically separate: one (Part 54) examines radiological health and safety, while the other (Part 51) examines environmental effects of all kinds. Our aging-based safety review does not in any sense 'restrict NEPA' or 'drastically narrow[ ] the scope of NEPA.'"<sup>171</sup> In short, the NEPA review in license renewal proceedings is not limited to aging-related issues and not barred by the fact that an environmental impact may be caused by activities associated with the CLB.

NEPA "declares a broad national commitment to protecting and promoting environmental quality."<sup>172</sup> As such, NEPA § 102(2)(C) requires that federal agencies, to the fullest extent possible:

include in every recommendation or report on proposals for . . . major Federal actions significantly affecting the quality of the human environment; a detailed statement

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<sup>168</sup> *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), LBP-06-11, 63 NRC 391, 399 (2006); *see also Natural Resources Defense Council, Inc. v. Environmental Protection Agency*, 643 F.3d 311 (D.C. Cir. 2011); *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-29, 60 NRC 417, 424 (2004) (stating that "[g]uidance documents are, by nature, only advisory. They need not apply in all situations and do not themselves impose legal requirements on licensees."); *Curators of the University of Missouri* (TRUMP-S Project), CLI-95-1, 41 NRC 71, 98 (1995) (stating "it is well established . . . that NUREGs and Regulatory Guides, by their very nature, serve merely as guidance and cannot prescribe requirements.").

<sup>169</sup> *Pilgrim*, CLI-12-10, 75 NRC at 497; *Seabrook*, CLI-12-5, 75 NRC at 309-11.

<sup>170</sup> *Turkey Point*, CLI-01-17, 54 NRC at 13.

<sup>171</sup> *Id.*

<sup>172</sup> *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989).

. . . on: (i) the environmental impact of the proposed action, (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.<sup>173</sup>

As noted earlier, the granting of an operating license is a major federal action for which the NRC must conduct a NEPA review.<sup>174</sup> At its heart, the NEPA process is designed to ensure that the decisionmaker has adequate and thorough information from which to make a decision.

It is absolutely essential to the NEPA process that the decisionmaker be provided with detailed and careful analysis of the relative environmental merits and demerits of the proposed action and possible alternatives, a requirement that we have characterized as the linchpin of the entire impact statement. Indeed the development and discussion of a wide range of alternatives to any proposed federal action is so important that it is mandated by NEPA when any proposal involves unresolved conflicts concerning alternative uses of available resources. This requirement is independent of and of wider scope than the duty to file the EIS.<sup>175</sup>

As explained above, to meet this burden in license renewal cases, the Staff developed the GEIS, which contains generic findings that apply to all nuclear power plants and are codified in Appendix B of Subpart A of 10 C.F.R. Part 51.<sup>176</sup> In accordance with 10 C.F.R. § 51.53(c), an applicant can adopt the generic findings of the GEIS (designated as Category 1 issues in Table B-1 of Appendix B to Subpart A of Part 51),<sup>177</sup> but must also include site-specific analyses of certain environmental impacts in its ER (designated as Category 2 issues in the same table).<sup>178</sup> These plant-specific reviews are evaluated by the Staff and are to be included in a site-specific supplement to the GEIS.<sup>179</sup>

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<sup>173</sup> 42 U.S.C. § 4332(2)(C) (2012).

<sup>174</sup> *New York v. NRC*, 589 F.3d at 553.

<sup>175</sup> *Natural Resources Defense Council, Inc. v. Callaway*, 524 F.2d 79, 92-93 (2d Cir. 1975) (citation and internal quotations omitted); see also *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), LBP-96-25, 44 NRC 331, 341 (1996) (stating that the EIS "serves as an environmental full disclosure law providing agency decisionmakers, as well as the President, the Congress, the CEQ, and the public the environmental cost-benefit information that Congress thought they should have about each qualifying federal action.").

<sup>176</sup> See *Turkey Point*, CLI-01-17, 54 NRC at 11 (conducting an extensive discussion of regulatory divide between the GEIS and plant-specific review).

<sup>177</sup> 10 C.F.R. § 51.53(c)(3)(i).

<sup>178</sup> *Id.* § 51.53(c)(3)(ii).

<sup>179</sup> FSEIS at iii (Ex. NYS00133A).

NEPA's requirements, like the publication of the EIS, "implement [NEPA's] sweeping policy goals by ensuring that agencies will take a 'hard look' at environmental consequences."<sup>180</sup> NEPA's "hard look requirement" does not allow sweeping generalities about possible effects and risk without a justification as to why more definitive information was not provided.<sup>181</sup> On the other hand, the Supreme Court has held that NEPA does not require a "worst case" inquiry.<sup>182</sup> Rather, NEPA analyses are assessed by the "rule of reason." Under the NEPA "rule of reason," "the agency's environmental analysis need only consider environmental impacts that are reasonably foreseeable, and need not consider remote and speculative scenarios."<sup>183</sup> To be successful, intervenors must demonstrate with adequate support that the Staff failed to take a "hard look" at important environmental questions or failed to provide a reasonable analysis.<sup>184</sup>

Several of the contentions in this case address a relatively nuanced area of NEPA law as applied in NRC license renewal proceedings — the Severe Accident Mitigation Alternatives (SAMA) analysis, required by 10 C.F.R. § 51.53(c)(3)(ii)(L). This analysis evaluates the degree to which specific additional mitigation measures may reduce the risk of various accident scenarios on a site-specific basis.<sup>185</sup> The SAMA analysis is a quantitative cost-benefit analysis, comparing the costs of a mitigation measure against its benefits.<sup>186</sup> The analysis also takes into account the probabilities of accident scenarios, so that the analysis ultimately "assesses whether and to what extent the probability-weighted consequences of the analyzed severe accident sequences would decrease if a specific mitigation alternative were implemented."<sup>187</sup>

As a NEPA analysis, "the SAMA analysis is not based on either the best-case or the worst-case accident scenarios, but on mean accident consequence values,

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<sup>180</sup> *Robertson*, 490 U.S. at 333.

<sup>181</sup> *Pa'ina Hawaii, LLC*, CLI-10-18, 72 NRC 56, 74 (2010) (citing *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1213 (9th Cir. 1998); *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1380 (9th Cir. 1998)).

<sup>182</sup> *Robertson*, 490 U.S. at 354-56.

<sup>183</sup> *Exelon Nuclear Texas Holdings, LLC* (Victoria County Station Site), LBP-11-16, 73 NRC 645, 690-91 (2011). See also *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-03-17, 58 NRC 419, 431 (2003) (stating that "NRC adjudicatory hearings are not EIS editing sessions. [We] do not sit to parse and fine-tune EISs.").

<sup>184</sup> See *id.*; *Seabrook*, CLI-12-5, 75 NRC at 341. While the agency must take a "hard look" under NEPA, "it is now well settled that NEPA itself does not mandate particular results." *Robertson*, 490 U.S. at 350.

<sup>185</sup> *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 706 (2012); *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-17, 56 NRC 1, 4 (2002).

<sup>186</sup> *Pilgrim*, CLI-12-15, 75 NRC at 707.

<sup>187</sup> *Id.* (internal quotations omitted).

averaged over the many hypothetical severe accident scenarios.”<sup>188</sup> When a board is called upon to assess a SAMA analysis, the Commission has instructed that “the question is not whether more or different analysis can be done.”<sup>189</sup> Contentions challenging a SAMA analysis “must identify a deficiency that plausibly could alter the overall result of the analysis in a material way.”<sup>190</sup> The question of material impacts “hinges upon whether [a SAMA alternative] may be cost-beneficial to implement.”<sup>191</sup> However, like other NEPA evaluations, a SAMA analysis is governed by the rule of reason and “alternatives must be bounded by some notion of feasibility.”<sup>192</sup> In short, “the proper question is not whether there are plausible alternative choices for use in the analysis, but whether the analysis that was done is reasonable under NEPA.”<sup>193</sup>

### **III. SAFETY CONTENTION RK-TC-2 (FLOW-ACCELERATED CORROSION)**

#### **A. Statement of Contention RK-TC-2**

RK-TC-2, a safety contention that challenges the aging management of flow-accelerated corrosion, as litigated on October 15, 16, and 17, 2012, reads as follows:

- (1) Entergy’s AMP for components affected by FAC is deficient because it does not provide sufficient details (*e.g.*, inspection method and frequency, criteria for component repair or replacement) to demonstrate that the intended functions of the applicable components will be maintained during the extended period of operation; and (2) Entergy’s program relies on the results from CHECWORKS without benchmarking or a track record of performance at IPEC’s power uprate levels.<sup>194</sup>

#### **B. RK-TC-2 Background**

##### **I. RK-TC-2 Procedural History**

As filed by Riverkeeper on November 30, 2007,<sup>195</sup> RK-TC-2 contended that

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<sup>188</sup> *Id.* at 708.

<sup>189</sup> *Id.* at 714.

<sup>190</sup> *Id.*

<sup>191</sup> *McGuire/Catawba*, CLI-02-17, 56 NRC at 12.

<sup>192</sup> *Pilgrim*, CLI-12-15, 75 NRC at 724 (citations omitted).

<sup>193</sup> *Seabrook*, CLI-12-5, 75 NRC at 323. *See also Town of Winthrop v. Federal Aviation Administration*, 535 F.3d 1, 13 (1st Cir. 2008) (stating that NEPA allows agencies “to select their own methodology as long as that methodology is reasonable.”).

<sup>194</sup> LBP-08-13, 68 NRC at 177.

<sup>195</sup> Riverkeeper Petition at 15.

Entergy's program for the management of flow-accelerated corrosion (FAC) failed to demonstrate that the effects of aging will be adequately managed for the PEO, and thus failed to satisfy the requirements of 10 C.F.R. § 54.21(a)(3).<sup>196</sup> More specifically, in RK-TC-2, Riverkeeper alleged that Entergy's FAC AMP failed to demonstrate that the intended functions of the FAC-vulnerable plant components will be adequately maintained during the proposed license renewal term because it did not specify the method and frequency of inspections, and the criteria for component repair or replacement.<sup>197</sup> In addition, Riverkeeper took issue with Entergy's reliance on the computer code CHECWORKS without sufficient benchmarking of the code under Indian Point operating parameters.<sup>198</sup> Riverkeeper argued that benchmarking is necessary because CHECWORKS is an empirical program that requires plant-specific calibrations.<sup>199</sup>

## ***2. Applicant's Aging Management Program for Flow-Accelerated Corrosion***

Appendix A, section A.2.1.14 (Flow-Accelerated Corrosion Program) of Entergy's LRA contains the supplement to the UFSAR, which presents a summary description of the program for managing the effects of aging due to FAC during the PEO.<sup>200</sup> Appendix A states that this information will be incorporated into the UFSAR following issuance of the renewed operating license.<sup>201</sup> In Appendix B, section B.1.15 (Flow-Accelerated Corrosion), Entergy describes the FAC program credited for managing aging effects during the PEO.<sup>202</sup> Section B.1.15 contains a "Program Description," which states that the FAC program "is an existing program that applies to safety-related and nonsafety-related carbon and low alloy steel components in systems containing high-energy fluids carrying two-phase or single-phase high-energy fluid  $\geq$  2 percent of plant operating time."<sup>203</sup> This section further represents that the FAC program is consistent with the program described in GALL-1,<sup>204</sup> with no exceptions and no enhancements (GALL § XI.M17).<sup>205</sup>

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<sup>196</sup> *Id.* at 15-16.

<sup>197</sup> *Id.*

<sup>198</sup> *Id.*

<sup>199</sup> *Id.* at 16, 20, 21.

<sup>200</sup> See License Renewal Application App. A (Ex. ENT00015B).

<sup>201</sup> *Id.*

<sup>202</sup> *Id.* at B-54 to -55.

<sup>203</sup> *Id.* at B-54.

<sup>204</sup> NRR, Generic Aging Lessons Learned (GALL) Report Rev. 1 (NUREG-1801) (Sept. 2005) (Ex. NYS00146C) [hereinafter GALL-1].

<sup>205</sup> License Renewal Application at B-54 (Ex. ENT00015B). The NRC Staff reviewed Entergy's  
(Continued)

Additionally, section B.1.15 states that the AMP “predicts, detects, and monitors FAC in plant piping and other pressure-retaining components,” and is “based on EPRI guidelines in the Nuclear Safety Analysis Center (NSAC)-202L-R2 [Report] for an effective flow-accelerated corrosion program . . . .”<sup>206</sup> Finally, operating experience relevant to the FAC AMP is also discussed in section B.1.15 of Entergy’s LRA.<sup>207</sup>

Based on the guidelines in NSAC-202L, GALL-1 stated that an effective FAC aging management program should include (a) an analysis to determine critical locations; (b) limited baseline inspections to determine the extent of thinning at these locations; and (c) follow-up inspections to confirm the predictions or to identify components needing repairs or replacements.<sup>208</sup> GALL-1 further provided an applicant with guidance regarding how an AMP can satisfy the ten separate program elements identified in GALL and the SRP-LR.<sup>209</sup> Following each of the ten program elements, GALL-1 provided a brief description of the applicability of each program element and a description of how an applicant can implement the program element.<sup>210</sup> The GALL-1 AMP for FAC stated that the program should include the use of a predictive code such as CHECWORKS.<sup>211</sup>

While Entergy’s LRA states that its FAC program is based on NSAC-202L-R2, Entergy subsequently amended this program to incorporate guidance in the more recent NSAC-202L-R3.<sup>212</sup> NSAC-202L-R3 states that it incorporates lessons learned following the publication of Revision 2 of NSAC-202L.<sup>213</sup>

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LRA for consistency with GALL-1. Tr. at 1683 (Mr. Yoder for the NRC Staff). However, the NRC Staff also deemed the Applicant’s LRA to be consistent with GALL-2. Tr. at 1680 (Mr. Yoder for the NRC Staff). GALL-1 and GALL-2 is discussed beginning at page 292, below.

<sup>206</sup> License Renewal Application at B-54 (Ex. ENT00015B).

<sup>207</sup> *Id.* at B-54 to -55.

<sup>208</sup> GALL-1, at XI.M-61 (Ex. NYS00146C).

<sup>209</sup> *Id.* at XI.M-62. The ten program elements identified in GALL and the SRP-LR are (1) scope of program, (2) preventative actions, (3) parameters monitored/inspected, (4) detection of aging effects, (5) monitoring and trending, (6) acceptance criteria, (7) corrective action, (8) confirmation process, (9) administrative controls, and (10) operating experience.

<sup>210</sup> *Id.* at XI.M-61 to -62.

<sup>211</sup> *Id.* at XI.M-61.

<sup>212</sup> See License Renewal Application at B-54 (Ex. ENT00015B); see also NL-07-153, Letter from Fred Dacimo, Entergy, to NRC, Amendment 1 to License Renewal Application (LRA), Attach. 1 at 46-48 (Dec. 18, 2007) (Ex. NYSR00159).

<sup>213</sup> Electric Power Research Institute (EPRI), Recommendations for an Effective Flow-Accelerated Corrosion Program (NSAC-202L-R3) (May 2006) at 5 (Ex. RIV000012) [hereinafter NSAC-202L-R3].

### **3. Legal Standards and Issues Related to RK-TC-2**

As explained in detail at pages 279-87, above, the applicable legal standards for Indian Point's FAC management AMP are contained in 10 C.F.R. §§ 54.21(a)(3) and 54.29(a) and stand as a condition precedent to relicensing. In order to secure license renewal, Entergy must demonstrate, to the point of providing "reasonable assurance" (as discussed in Section II.B, above), that the intended functions will be maintained in accordance with the CLB for the PEO.<sup>214</sup>

In determining whether an applicant's LRA provides the requisite "reasonable assurance," the Staff conducts a safety review of the applicant's LRA.<sup>215</sup> The Staff's review is intended to verify that the applicant has "properly scoped the aging management review; that the existing or planned aging management programs conform to the descriptions in the license renewal application; and that the documentation used to support the application is auditable, retrievable, and in fact does support the application."<sup>216</sup>

As noted beginning at page 282, above, the Staff's safety review pursuant to 10 C.F.R. Part 54 is principally guided by two documents: GALL and the SRP-LR,<sup>217</sup> and that an applicant's "use of an aging management program identified in the GALL Report constitutes reasonable assurance that it will manage the targeted aging effect during the renewal period."<sup>218</sup> However, "such a commitment does not absolve the applicant from demonstrating . . . that its AMP is indeed consistent with the GALL Report."<sup>219</sup> We cannot simply take the applicant at its word; we must examine whether the applicant's programs are in fact consistent with GALL.<sup>220</sup>

### **4. Evidentiary Record Related to RK-TC-2**

#### *a. Identification of Witnesses Who Provided Testimony Relevant to RK-TC-2*

Entergy presented five witnesses on RK-TC-2 — Ian D. Mew,<sup>221</sup> Alan B. Cox,<sup>222</sup> Nelson F. Azevedo,<sup>223</sup> Dr. Jeffrey S. Horowitz,<sup>224</sup> and Robert M. Alek-

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<sup>214</sup> 10 C.F.R. §§ 54.21(a)(3), 54.29(a).

<sup>215</sup> See generally 10 C.F.R. Part 54.

<sup>216</sup> *Oyster Creek*, CLI-08-23, 68 NRC at 468.

<sup>217</sup> *Id.* at 466.

<sup>218</sup> *Vt. Yankee*, CLI-10-17, 72 NRC at 36 (quoting *Oyster Creek*, CLI-08-23, 68 NRC at 468).

<sup>219</sup> *Id.* at 37.

<sup>220</sup> *Id.*

<sup>221</sup> Curriculum Vitae of Ian D. Mew (Ex. ENT000030).

<sup>222</sup> Curriculum Vitae of Alan B. Cox (Ex. ENT000031).

<sup>223</sup> Curriculum Vitae of Nelson F. Azevedo (Ex. ENTR00032).

<sup>224</sup> Curriculum Vitae of Jeffrey S. Horowitz (Ex. ENT000033).

sick.<sup>225</sup> On October 12, 2012, Entergy filed the written direct testimony of these five witnesses,<sup>226</sup> which was admitted into evidence on October 15, 2012.<sup>227</sup>

The NRC Staff presented two witnesses on RK-TC-2 — Matthew G. Yoder<sup>228</sup> and Dr. Allen L. Hiser.<sup>229</sup> On March 31, 2012, the NRC Staff filed the written direct testimony of these two witnesses,<sup>230</sup> which was admitted into evidence on October 15, 2012.<sup>231</sup>

Riverkeeper presented one witness on RK-TC-2 — Dr. Joram Hopenfeld.<sup>232</sup> On December 22, 2011, Riverkeeper filed the written direct testimony of this witness.<sup>233</sup> On June 29, 2012, Riverkeeper submitted written rebuttal testimony of this witness.<sup>234</sup> Both of these submissions were admitted into evidence on October 15, 2012.<sup>235</sup>

*b. Identification of Admitted Exhibits Relevant to RK-TC-2*

Relevant to RK-TC-2, Entergy submitted sixty-six exhibits, the NRC Staff submitted twelve exhibits, and Riverkeeper submitted forty-seven exhibits.<sup>236</sup>

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<sup>225</sup> Curriculum Vitae of Robert M. Aleksick (Ex. ENTR00037).

<sup>226</sup> See Testimony of Entergy Witnesses Ian D. Mew, Alan B. Cox, Nelson F. Azevedo, Jeffrey S. Horowitz, and Robert M. Aleksick Regarding Contention RK-TC-2 (Flow-Accelerated Corrosion) (Ex. ENTR00029) [Entergy RK-TC-2 Testimony]. The testimony submitted by Entergy on October 12, 2012, is Entergy's revised written testimony for RK-TC-2. Entergy's revised testimony replaces Entergy's original testimony for RK-TC-2, which was filed on March 28, 2012. Written testimony is generally attributed to several witnesses. Rather than repeatedly listing all of the witnesses' names for each reference to written testimony, statements from written testimony will be attributed to "Entergy's witnesses," "NRC Staff witnesses," "Staff witnesses," etc. When reference is made to the transcript the witness speaking will be identified.

<sup>227</sup> Tr. at 1269 (Judge McDade).

<sup>228</sup> Matthew Yoder Statement of Professional Qualifications (Ex. NRCR00122).

<sup>229</sup> Allen Hiser Statement of Professional Qualifications (Ex. NRCR00103).

<sup>230</sup> See NRC Staff Testimony of Matthew G. Yoder and Allen L. Hiser, Jr. Concerning Riverkeeper Technical Contention RK-TC-2 Flow-Accelerated Corrosion (Mar. 31, 2012) (Ex. NRC000121) [hereinafter NRC Staff RK-TC-2 Testimony].

<sup>231</sup> Tr. at 1269 (Judge McDade).

<sup>232</sup> Curriculum Vitae of Joram Hopenfeld (Ex. RIV000004).

<sup>233</sup> See Prefiled Written Testimony of Dr. Joram Hopenfeld Regarding Riverkeeper Contention TC-2 — Flow Accelerated Corrosion (Dec. 22, 2011) (Ex. RIV000003) [hereinafter Riverkeeper RK-TC-2 Testimony].

<sup>234</sup> See Prefiled Rebuttal Testimony of Dr. Joram Hopenfeld Regarding Riverkeeper Contention TC-2 — Flow Accelerated Corrosion (June 29, 2012) (Ex. RIV000108) [hereinafter Riverkeeper RK-TC-2 Rebuttal Testimony].

<sup>235</sup> Tr. at 1269 (Judge McDade).

<sup>236</sup> See Licensing Board Order (Issuing Appendix B to the Partial Initial Decision) (Nov. 27, 2013) (unpublished) [hereinafter Appendix B — Partial Initial Decision].

These exhibits were admitted into the record on October 15, 2012, and January 15, 2013.<sup>237</sup> As noted in note 117, above, all admitted exhibits that the Board viewed as relevant to the resolution of the Track 1 contentions are listed in Appendix B to this Partial Initial Decision.

c. *Relevant NRC Staff Guidance Documents, Industry Guidance Documents, and Corporate Procedures*

1. NUREG-1800, Rev. 2, “Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants” (Dec. 2010) (SRP-LR) (Ex. NYS00161). The purpose of the SRP-LR is to ensure the quality and uniformity of Staff review and to present a well-defined base from which to evaluate applicant programs and activities for the PEO.<sup>238</sup> Each of the individual sections in the SRP-LR addresses (1) who should perform the review; (2) the matters that are to be reviewed; (3) the basis for review; (4) how the review is to be accomplished; and (5) the conclusions to be made.<sup>239</sup>

2. NUREG-1801, Rev. 1, “Generic Aging Lessons Learned (GALL) Report” (Sept. 2005) (GALL-1) (Exs. NYS00146A-C). GALL-1 is referenced as a technical basis document in the SRP-LR.<sup>240</sup> GALL-1 identifies AMPs the NRC has determined to be acceptable for managing the aging effects of systems, structures, and components in the scope of license renewal, as required by 10 C.F.R. Part 54.<sup>241</sup>

3. NUREG-1801, Rev. 2, “Generic Aging Lessons Learned (GALL) Report” (Dec. 2010) (GALL-2) (Exs. NYS00147A-D). GALL-2 reflects changes to GALL-1 based on lessons learned from the reviews of LRAs, operating experience obtained after GALL-1 was issued, and other public input including industry comments.<sup>242</sup>

4. Electric Power Research Institute (EPRI), “Recommendations for an Effective Flow-Accelerated Corrosion Program,” NSAC-202L-R3 (May 2006) (NSAC-202L-R3) (Ex. RIV000012).<sup>243</sup> NSAC-202L-R3 presents a set of EPRI

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<sup>237</sup> Tr. at 1269 (Judge McDade); Order (Scheduling Post-Hearing Matters and Ruling on Motions to File Additional Exhibits) (Jan. 15, 2013) (unpublished).

<sup>238</sup> NRR, Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants, NUREG-1800, Rev. 2 (Dec. 2010) at iii (Ex. NYS00161) [hereinafter SRP-LR Rev. 2].

<sup>239</sup> *Id.*

<sup>240</sup> GALL-1 at iii (Ex. NYS00146A).

<sup>241</sup> *Id.*

<sup>242</sup> NRR, NRC, Generic Aging Lessons Learned (GALL) Report, NUREG-1801 Rev. 2 (Dec. 2010) at 3 (Ex. NYS00147A) [hereinafter GALL-2].

<sup>243</sup> Revision 3 of NSAC-202L contains recommendations updated with the worldwide experience  
(Continued)

recommendations for nuclear power plants to detect and mitigate FAC.<sup>244</sup> These recommendations are represented to be based on FAC inspection program implementation and nuclear power plant operating experience.<sup>245</sup> This document states that it presents the key elements for an effective FAC program and presents the steps that should be followed to minimize the chances of experiencing a consequential FAC-induced leak or rupture.<sup>246</sup>

5. EN-DC-315, Revision 6, Flow-Accelerated Corrosion Program (October 26, 2011) (EN-DC-315) (Ex. ENT000038). EN-DC-315 is a corporate fleet-wide procedure that Entergy developed to deal with FAC at all of its nuclear power plants in the United States.<sup>247</sup> The stated purpose of EN-DC-315 is to implement a common approach to establish standardized programmatic control, updating, and documenting for FAC programs at Entergy's nuclear plants.<sup>248</sup> EN-DC-315 provides criteria and methodology for implementing Entergy's FAC program.<sup>249</sup>

### C. Issues Raised in RK-TC-2

The Board admitted RK-TC-2 upon concluding that Riverkeeper had raised a genuine issue as to the adequacy of Entergy's FAC AMP, alleging that program was deficient because it did not provide sufficient details (as focused on the methods and frequency of inspections and criteria for component repair or replacement) to demonstrate that the aging effects of FAC will be adequately managed throughout the PEO.<sup>250</sup> Additionally, the Board concluded that Riverkeeper had raised a genuine issue whether Entergy's program relied on the results from CHECWORKS without adequate benchmarking, or a sufficient track record of performance at IPEC's power uprate levels.<sup>251</sup> Further, Riverkeeper raised a genuine issue regarding Entergy's definition of FAC, its wall-thinning manage-

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of members of the CHECWORKS Users Group, plus recent developments in detection, modeling, and mitigation technology. NSAC-202L-R3 at 5 (Ex. RIV000012). Despite referencing Revision 2 of NSAC-202L, Entergy relies upon NSAC-202L-R3 in its FAC Program. *See* Entergy RK-TC-2 Testimony at 26 (Ex. ENTR00029); EN-DC-315, Rev. 6, Flow Accelerated Corrosion Program at 16 (Oct. 26, 2011) (Ex. ENT000038) [hereinafter EN-DC-315].

<sup>244</sup> NSAC-202L-R3 at 5, 7 (Ex. RIV000012).

<sup>245</sup> *Id.*

<sup>246</sup> *Id.*

<sup>247</sup> Tr. at 1352 (Mr. Azevedo for Entergy).

<sup>248</sup> EN-DC-315 at 3 (Ex. ENT000038).

<sup>249</sup> *Id.*

<sup>250</sup> LBP-08-13, 68 NRC at 177.

<sup>251</sup> *Id.*

ment of steam generator components, and its prediction of wall thinning by means other than CHECWORKS.<sup>252</sup>

#### D. RK-TC-2 Findings

##### I. Adequacy of Entergy's Flow-Accelerated Corrosion Aging Management Program

Riverkeeper witness Dr. Hopenfeld stated that "Entergy lacks a sufficiently detailed AMP to demonstrate that the aging effects of FAC will be adequately managed throughout the proposed PEO,"<sup>253</sup> specifically asserting that to comply with GALL and the SRP-LR, Entergy must provide sufficient details to address all relevant program elements, including the method for determining component inspections, frequency of such inspections, and attendant criteria for component repair and replacement.<sup>254</sup> As explained below, based on the preponderance of the evidence before us, we disagree with Dr. Hopenfeld's conclusion that Entergy's AMP addressing FAC is inadequate.

###### a. Entergy's License Renewal Application

At the hearing, the Board examined the documentation of Entergy's FAC AMP and inquired into whether the program description in Entergy's FAC AMP provides sufficient information focused toward the Applicant's FAC inspections (frequency and methods) and criteria for component repair and replacement.<sup>255</sup> In response to questions from the Board, Entergy witness Mr. Cox testified that both Appendices A and B of the LRA contain a description of the program.<sup>256</sup> He further testified that Appendix A contains the supplement to the UFSAR, which presents a summary description of the FAC AMP,<sup>257</sup> while Appendix B contains a more detailed description of the FAC AMP, as well as operating experience relevant to the program.<sup>258</sup> Section B.1.15 of Appendix B states that the FAC

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<sup>252</sup> See, e.g., Riverkeeper RK-TC-2 Rebuttal Testimony at 14, 19, 43 (Ex. RIV000108).

<sup>253</sup> Report of Dr. Joram Hopenfeld in Support of Contention Riverkeeper TC-2 — Flow Accelerated Corrosion (Sept. 7, 2012) at 25 (Ex. RIVR00005) [hereinafter Hopenfeld Report].

<sup>254</sup> Id.

<sup>255</sup> See, e.g., Tr. at 1340 (Judge Kennedy).

<sup>256</sup> Tr. at 1342 (Mr. Cox for Entergy).

<sup>257</sup> Id.; see also LRA at A-24 (Ex. ENT00015B). Entergy has since supplemented and amended its application several times.

<sup>258</sup> LRA at B-54 to -55 (Ex. ENT00015B).

AMP “is an existing program” and that the FAC AMP is consistent with the program described in GALL.<sup>259</sup> We agree with this representation.

As presented in the LRA, Entergy’s FAC AMP is “based on . . . NSAC-202L-R2 . . . ”<sup>260</sup> Finally, Entergy’s LRA states that the “FAC Program has been effective at managing aging effects. The FAC Program assures the effects of aging are managed such that applicable components will continue to perform intended functions consistent with the current licensing basis through the period of extended operation.”<sup>261</sup> We also agree with this statement.

While Entergy’s FAC AMP, as it appears in its LRA, consists primarily of the Appendix B description and the summary description in Appendix A, Entergy’s FAC AMP does not stop there.<sup>262</sup> As discussed immediately below, Entergy’s FAC program was updated based on NSAC-202L-R3,<sup>263</sup> which is to be implemented via EN-DC-315.<sup>264</sup>

*b. Entergy’s Corporate Procedure*

Entergy witness Mr. Cox stated that GALL-1 is incorporated by reference into Appendix B of IPEC’s LRA.<sup>265</sup> He added that GALL, in turn, references NSAC-202L as the guidance document that describes an acceptable program to manage aging due to FAC.<sup>266</sup> He further testified that Entergy used the guidance in NSAC-202L as the basis for its FAC program<sup>267</sup> and developed EN-DC-315, its fleet-wide corporate procedure governing Entergy’s FAC AMP<sup>268</sup> which delineates the details of Entergy’s proposed FAC AMP.<sup>269</sup> Accordingly, as Mr. Cox testified, EN-DC-315 is the document Entergy will use to guide its day-

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<sup>259</sup> *Id.*

<sup>260</sup> *Id.* at B-54. In addition to the LRA’s reference to NSAC-202L-R2, GALL states that a FAC program relies on implementation of the guidelines in NSAC-202L-R2 for an effective FAC program. GALL-1 at XI.M-61 (Ex. NYS00146C).

<sup>261</sup> LRA at B-55 (Ex. ENT00015B).

<sup>262</sup> Tr. at 1342 (Mr. Cox for Entergy).

<sup>263</sup> Tr. at 1342, 1483 (Mr. Cox for Entergy).

<sup>264</sup> Entergy RK-TC-2 Testimony at 31 (Ex. ENTR00029).

<sup>265</sup> Tr. at 1344 (Mr. Cox for Entergy).

<sup>266</sup> Tr. at 1346 (Mr. Cox for Entergy).

<sup>267</sup> Tr. at 1342 (Mr. Cox for Entergy). Entergy testified that NSAC-202L is a “fairly detailed description of an effective FAC [aging] management program.” According to NSAC-202L, an effective FAC program includes the following six elements: (1) corporate commitment; (2) analysis; (3) operating experience; (4) inspections; (5) training and engineering judgment; and (6) long-term strategy. NSAC-202L addresses each of these elements in more detail and makes recommendations for implementation of each element in an effective AMP.

<sup>268</sup> See Entergy RK-TC-2 Testimony at 37 (Ex. ENTR00029).

<sup>269</sup> See generally EN-DC-315 (Ex. ENT000038); see also Tr. at 1355 (Mr. Cox for Entergy).

to-day FAC practices to ensure compliance with the actions described in the NSAC document.<sup>270</sup> EN-DC-315 describes how inspections will be conducted and inspection data will be evaluated, as well as outlining the acceptance criteria for inspection components, the criteria for the disposition of components failing to meet acceptance criteria, the sample expansion criteria,<sup>271</sup> and the instructions for incorporating inspection data into the CHECWORKS model.<sup>272</sup> After reviewing this document, we find that it contains sufficient detail for us to evaluate the effectiveness of Entergy's FAC program.

As an example of the level of specificity contained in the Applicant's FAC AMP, Entergy's witnesses testified that inspection locations and the extent and schedule of inspections are to be selected in accordance with NSAC-202L to assure detection of wall thinning before the loss of intended function.<sup>273</sup> According to NSAC-202L-R3, the inspection locations shall be chosen to select the components with the greatest susceptibility to FAC.<sup>274</sup>

Using EN-DC-315 as the guide, Entergy's witnesses testified that inspection locations will be selected differently for pipes that are modeled with CHECWORKS than those selected for nonmodeled pipes.<sup>275</sup> These witnesses further testified that Entergy's criteria for component selection for modeled piping at IPEC, consistent with NSAC-202L-R3,<sup>276</sup> are based on several factors including: (1) the trending of pipe wall thickness measurements from past outages; (2) predictive evaluations performed using the CHECWORKS code; (3) industry and IPEC-specific operating experience related to FAC; (4) results from other plant inspection programs; and (5) engineering judgment.<sup>277</sup> We find these procedures to be adequate.

Entergy witnesses additionally testified that the susceptible nonmodeled piping will be evaluated for inspection using a similar set of criteria, except that criterion

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<sup>270</sup>Tr. at 1356 (Mr. Cox for Entergy).

<sup>271</sup>Sample expansion criteria are parameters that if exceeded would result in additional inspections to be conducted. For example, if the measured wall thickness is less than the minimum acceptable wall thickness, then additional inspections of identical or similar piping components would be performed. See EN-DC-315 at 26-27 (Ex. ENT000038).

<sup>272</sup>See *id.*

<sup>273</sup>*Id.* at 43-44. GALL FAC programs rely on the inspection program delineated in NSAC-202L, which consists of identification of susceptible locations as indicated by operating conditions or special considerations. GALL-1 at XI-M61 (Ex. NYS00146C).

<sup>274</sup>NSAC-202L-R3, at 2-2 (Ex. RIV000012). The piping locations at IPEC that are most susceptible to FAC are locations with two-phase flow and high moisture content, lines which contain saturated liquid that flashes to steam due to changes in pressure, and certain areas with high flow velocity and high turbulence. Entergy RK-TC-2 Testimony at 44 (Ex. ENTR00029).

<sup>275</sup>Entergy RK-TC-2 Testimony at 43 (Ex. ENTR00029).

<sup>276</sup>*Id.* at 45 (citing EN-DC-315 at 15-19 (Ex. ENT000038)).

<sup>277</sup>*Id.* at 45-46 (citing NSAC-202L-R3 at 2-3 to -4, 3-2 (Ex. RIV000012)).

(2), above, the predictive evaluations from CHECWORKS, will not be used.<sup>278</sup> Instead, according to Entergy witnesses Mr. Mew and Mr. Aleksick, a separate set of susceptible nonmodeled piping rankings (based on operating conditions, consequence of failure, maintenance history, and industry experience) will be employed.<sup>279</sup> According to Mr. Mew and Mr. Aleksick, each criterion can be the basis for a decision to select a particular component for inspection,<sup>280</sup> because “experience has shown that this approach has led to effective FAC programs throughout the industry.”<sup>281</sup> They also stated that the actual measured and CHECWORKS-predicted margins between nominal wall thickness and minimum required wall thickness, along with the consequence of failure of a particular component with respect to personnel safety and plant availability will be considered in selecting the location of future IPEC inspections.<sup>282</sup>

Referring to the earlier discussion in this section, we find that Entergy’s FAC AMP is based on three documents, GALL, NSAC-202L, and EN-DC-315, each in order containing progressively more site-specific detail than its predecessor, and note that together these documents specify the activities to be conducted under Entergy’s FAC AMP.

With the Commission’s *Oyster Creek* decision in mind, and given the level of detail in NSAC-202L and EN-DC-315, we find that Riverkeeper’s assertion that Entergy’s FAC AMP lacks sufficient detail to provide the NRC Staff with the requisite reasonable assurance lacks adequate evidentiary support. Based on the information in Entergy’s LRA and subsequent testimony, we find that Entergy’s FAC AMP implements the recommendations of GALL, as well as the more detailed guidelines provided in NSAC-202L. For the reasons stated above, we find that Entergy has demonstrated with sufficient specificity that IPEC’s AMP for FAC meets the industry guidelines relating to the methods and frequency of inspections and for the repair or replacement of components. Consequently, we find that Entergy’s FAC AMP is consistent with GALL and provides sufficient detail to demonstrate that the intended functions of the applicable components will be managed during the PEO.

## **2. *Definition of Flow-Accelerated Corrosion***

In support of contention RK-TC-2, Riverkeeper witness Dr. Hopenfeld testified that, “FAC is a pipe wall thinning phenomenon in which the thinning rate

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<sup>278</sup> *Id.* at 46.

<sup>279</sup> *Id.*

<sup>280</sup> *Id.*

<sup>281</sup> *Id.* at 44.

<sup>282</sup> *Id.* at 46 (citing EN-DC-315 at 15-19 (Ex. ENT000038)).

is accelerated by flow velocity,”<sup>283</sup> and that wall thinning is highly dependent on flow velocity.<sup>284</sup> He stated that, “[g]enerally, two different mechanisms could lead to such wall thinning: (1) physical removal of metal by mechanical forces (shear or impact), and (2) chemical or electrochemical dissolution of the metal.”<sup>285</sup> He further stated that “[i]n many instances both mechanisms occur simultaneously.”<sup>286</sup> Dr. Hopenfeld also testified that Entergy “improperly excludes wall thinning by cavitation, wet steam, galvanic corrosion, and jet impingement/erosion even though all are [a]ffected by flow velocities,”<sup>287</sup> and that Entergy’s use of CHEC-WORKS is deficient because it “does not predict wall thinning by these other mechanisms, including cavitation or droplet impingement.”<sup>288</sup>

Taking exception to Dr. Hopenfeld’s view, Entergy witnesses defined FAC as the “[d]egradation and consequent wall thinning of a component by a dissolution phenomenon, which is affected by variables such as temperature, steam quality, steam/fluid velocity, water chemistry, component material composition and component geometry.”<sup>289</sup> Acknowledging that in the past FAC has been referred to as “erosion/corrosion,”<sup>290</sup> Entergy’s witnesses nonetheless testified that “FAC is a chemical corrosion phenomenon that is distinct from mechanical or erosive phenomena that may cause pipe wall thinning, such as cavitation, liquid droplet impingement, and solid particle erosion.”<sup>291</sup> They testified that FAC is defined throughout the industry as a chemical corrosion process and not an erosive phenomenon.<sup>292</sup>

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<sup>283</sup> Hopenfeld Report at 2 (Ex. RIVR00005).

<sup>284</sup> Riverkeeper RK-TC-2 Rebuttal Testimony at 29 (Ex. RIV000108).

<sup>285</sup> Hopenfeld Report at 2 (Ex. RIVR00005).

<sup>286</sup> *Id.*

<sup>287</sup> Riverkeeper RK-TC-2 Rebuttal Testimony at 29 (Ex. RIV000108) (citing Entergy RK-TC-2 Testimony at 32). To support his definition of FAC, Dr. Hopenfeld cites examples of observed nonlinear wear. *See, e.g.*, Tr. at 1547, 1579-81, 1583, 1585-86 (Dr. Hopenfeld for Riverkeeper). He testified that this nonlinear wear is the result of localized effects related to the erosion contribution to FAC. Tr. at 1545-46 (Dr. Hopenfeld for Riverkeeper). Dr. Hopenfeld testified that because the Entergy FAC AMP does not account for this localized effect, the ability of the Indian Point FAC program to detect FAC is inhibited. Tr. at 1493 (Dr. Hopenfeld for Riverkeeper).

<sup>288</sup> Riverkeeper RK-TC-2 Rebuttal Testimony at 29 (Ex. RIV000108).

<sup>289</sup> Entergy RK-TC-2 Testimony at 29 (Ex. ENTR00029) (citing EN-DC-315, at 6 (Ex. ENT-000038)); *see also* NSAC-202L-R3, at v, 1-2 (Ex. RIV000012); Tr. at 1438 (Mr. Aleksick for Entergy) (“Flow-accelerated corrosion is a pure corrosion process.”). The NRC Staff’s witnesses agreed with this definition. *See* NRC Staff RK-TC-2 Testimony at 7-8 (Ex. NRCR00121).

<sup>290</sup> Entergy RK-TC-2 Testimony at 29 (Ex. ENTR00029).

<sup>291</sup> *Id.*

<sup>292</sup> *Id.* at 29-32. This definition is consistent with NSAC-202L-R3 and Entergy’s corporate FAC Program, EN-DC-315. *Id.* at 29. As stated above, NSAC-202L is the industry guidance document for developing a FAC AMP. NSAC-202L-R3 at 5, 7 (Ex. RIV000012).

Entergy's witnesses further testified that FAC and other degradation mechanisms do not occur simultaneously,<sup>293</sup> in that wall thinning in FAC-susceptible systems is caused "either by a chemical process (*i.e.*, FAC) or an erosive process, but not both" and "[c]ombinations of mechanisms in FAC-susceptible systems are rare."<sup>294</sup> Their claim is based on the supposition "erosion in combination with FAC does not occur in carbon steel piping because the oxide layer that is necessary for FAC cannot form if erosion is occurring."<sup>295</sup> According to Entergy's witnesses, in a FAC-susceptible system wall thinning due to erosion is "treated as a design issue, not an aging mechanism."<sup>296</sup>

We find that Entergy appropriately defined FAC as a chemical corrosion process and not an erosive phenomenon. We find no compelling support for Riverkeeper's position that Entergy's FAC program is deficient for failing to include wall thinning due to physical processes with the chemical process degradation generally associated with FAC. The Board addresses, in turn, Riverkeeper's main arguments regarding the definition of FAC.

First, Dr. Hopenfeld in his testimony referenced a paper authored by Dr. Digby Macdonald for the proposition that "erosion/corrosion . . . is not a mass transfer controlled process."<sup>297</sup> Dr. Hopenfeld further testified that:

when the flow is fairly low, the level of turbulence is low. The whole process is controlled basically by metal dissolution.

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<sup>293</sup> Entergy RK-TC-2 Testimony at 32 (Ex. ENTR00029) (stating that "[b]ased on our more than 45 years of experience with FAC, this statement [that erosion and corrosion occur simultaneously] is incorrect.").

<sup>294</sup> *Id.* Despite maintaining that erosion in combination with FAC does not occur in carbon steel piping, Entergy's witnesses testified that "[o]nce cavitation is identified, the situation is normally corrected as part of ongoing operations and maintenance activities." *Id.* They testified that "mechanical or erosive damage to piping surfaces can occur by various means, but . . . the FAC Program addresses wall-thinning, whether caused by FAC or not." *Id.* at 31. They explained that "the CHECWORKS model is based on empirical data from many plants" and that "CHECWORKS is calibrated at individual plants through the PASS-2 analysis, which compares predicted and measured wear rates from UT data." *Id.* at 61. "To the extent that plant-specific UT [ultrasonic testing] data reflects the effects of degradation mechanisms other than FAC, then after calibration the effects of those mechanisms are accounted for in subsequent wear rate predictions. For modeled lines, however, mechanisms other than FAC are usually negligible." *Id.* Entergy's witness Mr. Aleksick explained that "the FAC Program is in a sense a wall-thinning program. And so through the use particularly of operating experience as well as engineering judgment, those other degradation mechanisms are addressed." Tr. at 1439 (Mr. Aleksick for Entergy).

<sup>295</sup> Entergy RK-TC-2 Testimony at 32 (Ex. ENTR00029).

<sup>296</sup> *Id.*

<sup>297</sup> Tr. at 1323 (Dr. Hopenfeld for Riverkeeper) (referencing Digby D. Macdonald, *The Point Defect Model for the Passive State*, 139 J. Electrochem. Soc. (Issue No. 12, Dec. 1992) (Ex. RIV000127) [hereinafter Macdonald Paper]).

When you go beyond that . . . you go through very, very high turbulence and at that point you have a situation that part of that outside layer is weakened. . . . It's easier for the flow shear to remove part of the outside layer[.]

At this point, you get in the situation that you have both, erosion and corrosion.<sup>298</sup>

Although this statement is consistent with the erosion/corrosion discussion in the Macdonald paper, Dr. Hopenfeld's testimony and his reference to the Macdonald paper do not convince the Board that FAC includes wall thinning due to chemical corrosion and mechanical erosion. Entergy witness Dr. Horowitz stated that the assumption in the Macdonald paper is that a critical velocity is reached,<sup>299</sup> and testified that this critical flow velocity condition is not reached at Nuclear Power Plants (NPPs) as evident from all the data and experiments related to FAC.<sup>300</sup> The Board agrees and finds that the Macdonald paper does not support Riverkeeper's position that FAC includes wall thinning due to physical, mechanical processes at IPEC because the requisite critical velocity conditions do not occur under actual plant conditions.

Second, Dr. Hopenfeld referenced the BRT-CICERO software<sup>301</sup> in support of his hypothesis that FAC occurs at a "nonlinear rate" which indicates that FAC is not limited to chemical corrosion.<sup>302</sup> We find that Riverkeeper's reference to the BRT-CICERO software lends little support to its position. As Entergy witness Dr. Horowitz testified, "[t]he CICERO code is clearly based on [a] linear assumption. The assumption is exactly the same as CHECWORKS."<sup>303</sup> Therefore, because the CICERO code is based on the same linear assumption as CHECWORKS, the Board finds that the BRT-CICERO paper does not support Dr. Hopenfeld's hypothesis that CHECWORKS and the FAC program are deficient because both BRT-CICERO and CHECWORKS assume a linear rate of FAC.

Additionally, to further refute Dr. Hopenfeld's "nonlinear rate" thesis, Entergy witness Mr. Aleksick testified that "through experience of 23 years in this field the

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<sup>298</sup> Tr. at 1442 (Dr. Hopenfeld for Riverkeeper).

<sup>299</sup> Tr. at 1444 (Dr. Horowitz for Entergy). The term "critical velocity" was introduced by Dr. Horowitz to describe a flow velocity in the Macdonald paper in which the wall thinning is represented more by erosion/corrosion than corrosion. *See* Macdonald Paper at 12, fig. 17 (Ex. RIV000127).

<sup>300</sup> Tr. at 1444 (Dr. Horowitz for Entergy).

<sup>301</sup> Tr. at 1549 (Dr. Hopenfeld for Riverkeeper) (referencing the BRT-CICERO paper, Ex. RIV-000110). The BRT-CICERO paper describes the French BRT-CICERO software, which is based on laboratory data aimed at showing that FAC progresses at a constant rate under constant operating conditions. *See* Entergy RK-TC-2 Testimony at 32 (Ex. ENTR00029) (citing Stephane Trevin and Marie-Pierre Mourillette, Optimization of EDF's NPPs Maintenance Due to Flow Accelerated Corrosion and BRT-CICERO Improvement by NDT Results Analysis (Apr. 2012) (Ex. RIV000110)).

<sup>302</sup> Hopenfeld Report at 2 (Ex. RIVR00005); Tr. at 1421 (Dr. Hopenfeld for Riverkeeper) (stating that he has not seen "any data" suggesting that the rate of FAC is linear with time).

<sup>303</sup> Tr. at 1882 (Dr. Horowitz for Entergy).

wear rates are linear and you can plot a measurement that at 1992 and then inspect the same component in 2002 and in 2012 and you will see a linear progression of wear.”<sup>304</sup> Mr. Aleksick additionally testified that “one could go back to the data set of 3,700 historical inspections. Some of the components in that data set have been inspected multiple times, two, three, four times over a period of many years. And plot those, and I think demonstrate the linear nature of FAC.”<sup>305</sup> Based on this evidence, the Board is not persuaded by Dr. Hopenfeld’s argument that FAC occurs at a “nonlinear rate” and deduction from this nonlinearity that FAC is not limited to chemical corrosion.

Third, Dr. Hopenfeld referenced two Entergy FAC inspection reports as examples that “nonlinear wear exists at Indian Point” and that the definition of FAC should include erosion.<sup>306</sup> Although Dr. Hopenfeld pointed to an exhibit from each report,<sup>307</sup> he provided no further explanation in support for his nonlinearity hypothesis.<sup>308</sup> The Board finds that these two examples fail to support Dr. Hopenfeld’s position that nonlinear wear exists at IPEC and that the definition of FAC should include erosion. The referenced exhibits provide no indication of nonlinear wear. To the contrary, the FAC Inspection Report for IP3 conducted in 2005 shows an elbow component, where the variations in wall thickness were due to how the component was manufactured, not FAC or any other degradation mechanism.<sup>309</sup> Similarly, the FAC Inspection Report for IP3 conducted in 2005 shows a pipe reducer, where again the thickness variations were due to the design of the component, not any wall-thinning mechanism.<sup>310</sup> Even if there were no evidence regarding the cause of the thickness variations, it would be difficult for Dr. Hopenfeld’s references to provide support for his position given that his conclusions were “based on a gut feeling”<sup>311</sup> and his acknowledgment that he “ha[dn’t] analyzed . . . these steep changes.”<sup>312</sup>

Lastly, to back his argument regarding the definition of FAC and to demonstrate the presence of nonlinear localized wear, Dr. Hopenfeld discussed “instances of undetected FAC [that] ha[s] previously resulted in catastrophic events” at other

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<sup>304</sup> Tr. at 1431 (Mr. Aleksick for Entergy).

<sup>305</sup> Tr. at 1766 (Mr. Aleksick for Entergy).

<sup>306</sup> Tr. at 1845 (Dr. Hopenfeld for Riverkeeper) (referring to Exs. RIV000132 and RIV000133).

<sup>307</sup> *Id.*

<sup>308</sup> See Tr. at 1847 (Dr. Hopenfeld for Riverkeeper) (stating that his conclusions regarding the two Entergy FAC inspection reports were based on “some averages” and on a “gut feeling”); Tr. at 1848 (Dr. Hopenfeld for Riverkeeper) (stating that in reviewing the inspection report data, he simply “looked at this and said, ‘[I]ook, there is a significant change here.’”). But Dr. Hopenfeld provided no explanation and even stated that “[he] ha[dn’t] analyzed” the data. *Id.*

<sup>309</sup> See Tr. at 1887-89 (Mr. Aleksick for Entergy) (explaining the variations in wall thickness).

<sup>310</sup> See Tr. at 1878-79 (Mr. Aleksick for Entergy) (explaining the variations in wall thickness).

<sup>311</sup> Tr. at 1846 (Dr. Hopenfeld for Riverkeeper).

<sup>312</sup> Tr. at 1848 (Dr. Hopenfeld for Riverkeeper).

nuclear power plants, i.e., Surry, San Onofre, Fort Calhoun, and Mihama.<sup>313</sup> Although these might be examples of undetected FAC, we find that Riverkeeper's reliance on operating experience with undetected FAC at other nuclear power plants and Dr. Hopenfeld's discussion of these occurrences provides no support for its position that the wear is nonlinear. In regard to selected examples that provided some discussion of wear rate (i.e., Surry, Fort Calhoun, and Mihama), the Board does not find this evidence convincing for the reasons summarized below.

In regard to the pipe rupture at Surry, Dr. Hopenfeld testified that according to published reports the FAC-related failure involved uneven corrosion that occurred in an elbow component.<sup>314</sup> He went on to assert that the Surry incident supports his conclusion that nonlinear localized wear occurs because "20% of the wall thickness was lost in less than 18 months."<sup>315</sup> In contrast, Dr. Horowitz testified for Entergy that "[t]he 20 percent wall loss turns out to be an erroneous conclusion made at the inspection of the outage after the rupture."<sup>316</sup> He asserted that although it appears that the "process was non-linear, . . . that turns out not to be the case at all."<sup>317</sup> According to Dr. Horowitz, the wear actually occurred over the operational life of the Surry elbow, which was roughly 10 years.<sup>318</sup> Additionally, as Entergy's witnesses, Dr. Horowitz and Mr. Aleksick, noted, Surry had no FAC program when the pipe rupture event occurred.<sup>319</sup> In fact, as Dr. Horowitz accurately

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<sup>313</sup> Hopenfeld Report at 3 (Ex. RIVR00005); *see also* Tr. at 1514-17, 1530-31 (Dr. Hopenfeld for Riverkeeper). Dr. Hopenfeld references (1) a feedwater pipe elbow rupture at the Surry nuclear power plant in 1986; (2) FAC resulted in failures of feed ring and J-tube components at the San Onofre steam generators in 1993; (3) extraction steam piping ruptured at the Fort Calhoun Station in 1997; and (4) FAC in the secondary loop at the Mihama nuclear power plant in 2004. Hopenfeld Report at 3 (Ex. RIVR00005).

<sup>314</sup> Tr. at 1514-15 (Dr. Hopenfeld for Riverkeeper).

<sup>315</sup> Riverkeeper RK-TC-2 Rebuttal Testimony at 40 (Ex. RIV000108); Tr. at 1515 (Dr. Hopenfeld for Riverkeeper) (responding to Judge Wardwell's question asking for "evidence that supports your contention that this local type failure does result in non-linear rates."). It is also noted that Dr. Hopenfeld appears to cite these examples of operating experience at other facilities as general criticism of CHECWORKS and IPEC's FAC program.

<sup>316</sup> Tr. at 1520-21 (Dr. Horowitz for Entergy).

<sup>317</sup> Tr. at 1521 (Dr. Horowitz for Entergy). It is noted that Dr. Hopenfeld appeared to concede to Dr. Horowitz's conclusion. *See* Tr. at 1523 (Dr. Hopenfeld for Riverkeeper) ("With respect to Dr. Horowitz' comments, I'm sure he's right. He's done much more detailed analysis of it than I did. I just go as to what — I talked to various people at the time. I visited the plant at the time and I saw literature following the accident and that's what I reported here. If he has done additional analysis, I wish he had shared it with us.").

<sup>318</sup> Tr. at 1521 (Dr. Horowitz for Entergy).

<sup>319</sup> Entergy RK-TC-2 Testimony at 9, 100 (Ex. ENTR00029).

testified, the Surry accident resulted in the development of CHEC, the first EPRI computer program used to predict FAC.<sup>320</sup>

At Fort Calhoun,<sup>321</sup> as Entergy's witnesses testified, the underlying failure to detect the FAC was due to an error in data input causing a failure location to be omitted from inspection.<sup>322</sup> Lastly, in regard to the Mihama example, Dr. Hopenfeld for Riverkeeper maintained that this FAC event "was very, very local" and "completely unpredicted."<sup>323</sup> Dr. Hopenfeld stated that a close review of these events showed a "clear indication" of "how local the phenomenon" was, with the data in particular showing "that there [was] no linearity between time and corrosion."<sup>324</sup> Dr. Horowitz for Entergy countered that he "would hardly characterize it as local. If you look at the pictures you can see the large amount of thinning evolves downstream of an orifice."<sup>325</sup> Additionally, according to Dr. Horowitz, no computer code or predictive method was used to select the inspection locations at Mihama and the plant operators (using their nonpredictive approach) just missed it.<sup>326</sup> So as Dr. Horowitz testified, for roughly 15 years nobody thought to inspect the piping downstream of that orifice.<sup>327</sup> We find Dr. Horowitz's conclusions compelling. Because of the significant amount of time that the plant operated without inspecting this piping location downstream of the orifice, we find no support was presented for Dr. Hopenfeld's conclusion that the Mihama failure indicated nonlinear wear.

Accordingly, we find that the examples cited by Dr. Hopenfeld do not provide a technical basis for defining and managing FAC as both a chemical corrosion and erosive process. The Board concludes that Entergy, for purposes of its FAC program, has appropriately defined flow-accelerated corrosion as a chemical corrosion process, that FAC is not an erosive phenomenon, and that all evidence in the record before us points to a linear rate of FAC wear. We thus find that FAC is degradation and consequent wall thinning of a component by chemical dissolution, which is affected by variables such as temperature, steam quality, steam/fluid velocity, water chemistry, component material composition, and component geometry.

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<sup>320</sup> *Id.* at 100.

<sup>321</sup> Dr. Hopenfeld appears to cite Fort Calhoun only as an example that "undetected FAC at nuclear power plants have . . . resulted in catastrophic events." Hopenfeld Report at 3 (Ex. RIVR00005). The example does not appear to the Board to be cited in support of Dr. Hopenfeld's definitional argument.

<sup>322</sup> Entergy RK-TC-2 Testimony at 100 (Ex. ENTR00029).

<sup>323</sup> Tr. at 1517 (Dr. Hopenfeld for Riverkeeper).

<sup>324</sup> Tr. at 1530-31 (Dr. Hopenfeld for Riverkeeper).

<sup>325</sup> Tr. at 1518 (Dr. Horowitz for Entergy).

<sup>326</sup> *Id.*

<sup>327</sup> Tr. at 1519 (Dr. Horowitz for Entergy).

### **3. Adequacy of CHECWORKS Benchmarking at IPEC**

IP2 underwent a Stretch Power Uprate (SPU) of 3.26% in 2004, and IP3 underwent a SPU of 4.85% in 2005.<sup>328</sup> Riverkeeper alleges that, following the 2004 and 2005 SPUs at IPEC, 10 to 15 years of post-uprate “benchmarking” should be required before CHECWORKS can be used as part of the FAC Program.<sup>329</sup> We find no evidentiary support for Riverkeeper’s claim that extended post-uprate benchmarking must occur before CHECWORKS can be useful.<sup>330</sup>

First, we find that the validity of CHECWORKS results does not depend on post-uprate benchmarking, extended or otherwise. Entergy’s witnesses convincingly testified that CHECWORKS appropriately accounts for the change in FAC wear rates that occur due to power uprates<sup>331</sup> and that Entergy updated the IP2 and IP3 CHECWORKS models in 2005 to include the new SPU operating parameter changes, such as flow rates and operating temperatures.<sup>332</sup> According to Entergy’s witnesses, “CHECWORKS was designed, and has been shown, to accommodate changes in chemistry, flow rate, and other operating conditions that may be associated with power uprates, without inspection data from multiple outages.”<sup>333</sup>

As further support, Entergy’s witnesses cited a recent study that examined the impact of SPUs and Extended Power Upgrades (EPUs) of up to 20% on the FAC programs at twenty-two U.S. nuclear units.<sup>334</sup> This study concluded that CHECWORKS predictions reasonably matched inspection conditions after the power uprates.<sup>335</sup> Additionally, Entergy’s witnesses testified that “comparison of the measured wear and CHECWORKS model-predicted wear indicates a level of correlation following SPU implementation that is consistent with the level of correlation at IPEC before uprates.”<sup>336</sup>

Additionally, in correspondence submitted to the NRC in response to an NRC Staff RAI, Entergy explained that the validity of the CHECWORKS model does not depend on benchmarking against plant-specific measured wear rates of

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<sup>328</sup> See Entergy RK-TC-2 Testimony at 62 (Ex. ENTR00029); Approved Applications for Power Uprates (Oct. 28, 2009) (Ex. ENT000083).

<sup>329</sup> Riverkeeper Petition at 21-22; Hopfenfeld Report at 3-4 (Ex. RIVR00005).

<sup>330</sup> Hopfenfeld Report at 4 (Ex. RIVR00005).

<sup>331</sup> Entergy RK-TC-2 Testimony at 86-87 (Ex. ENTR00029).

<sup>332</sup> See id. at 62; NRC Staff RK-TC-2 Testimony at 29 (Ex. NRCR00121).

<sup>333</sup> Entergy RK-TC-2 Testimony at 86 (Ex. ENTR00029).

<sup>334</sup> Id.

<sup>335</sup> See EPRI, Plant Engineering: Impact of Electric Power Upgrades on Flow-Accelerated Corrosion (July 2011) (Ex. ENT000081).

<sup>336</sup> Entergy RK-TC-2 Testimony at 87 (Ex. ENTR00029).

components operating under SPU conditions,<sup>337</sup> and that the uprated conditions (e.g., flow rate and operating temperatures) are generally bracketed by historical data.<sup>338</sup> Entergy indicated that:

[i]n its use throughout the industry, the CHECWORKS model has been benchmarked against measurements of wall thinning for components operating over a wide range of flow rates. Consequently, the validity of the model does not depend on benchmarking against plant-specific measured wear rates of components operating under SPU conditions. . . . The accuracy of the model is not expected to change significantly due to the SPU.<sup>339</sup>

And the NRC Staff agreed with Entergy's RAI response, concluding in the Indian Point SER that CHECWORKS is a "self-benchmarking" computer code.<sup>340</sup> In this regard, the NRC Staff witnesses Dr. Hiser and Mr. Yoder testified that:

CHECWORKS is "calibrated" for the plant by adding plant-specific data from actual physical inspection data from components, developed over the course of several inspections. This calibration process is sometimes called "self-benchmarking." The calibration evaluates a line correction factor for a given line, which is used to adjust wear rate predictions in a given line to account for plant operating conditions that may vary with time. The line correction factor is determined by comparing the predicted wear to the measured wear at locations in the line which have been inspected. . . . Self-benchmarking of CHECWORKS improves the accuracy of wear predictions from the plant-specific model to account for the actual wear that is occurring in the plant. The self-benchmarking improves the estimates of FAC and helps to indicate the locations for future inspections.<sup>341</sup>

Based on Entergy's and the NRC Staff's convincing testimony, the Board finds that the validity of CHECWORKS results does not depend on post-uprate benchmarking because CHECWORKS (1) accounts for the change in FAC wear rates that occur due to power uprates; and (2) is a "self-benchmarking" computer code.

Second, we conclude that extended benchmarking is not required because, as Entergy witnesses Dr. Horowitz and Mr. Aleksick testified, CHECWORKS is properly performing its intended function by providing a screening and ranking

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<sup>337</sup> See NL-08-004, Letter from Fred R. Dacimo, Entergy, to NRC, Reply to Request for Additional Information Regarding License Renewal Application (Steam Generator Tube Integrity and Chemistry), Attach. 1 at 3 (Jan. 4, 2008) (Ex. ENT000082).

<sup>338</sup> *Id.*

<sup>339</sup> *Id.*

<sup>340</sup> SER at 3-28 (Ex. NYS00326B).

<sup>341</sup> NRC Staff RK-TC-2 Testimony at 15-16 (Ex. NRCR00121).

function for the FAC engineer to identify inspection locations.<sup>342</sup> They clarified that CHECWORKS is not used to determine corrective action, but is a predictive software tool, based on algorithms developed from test data that is only used with other plant information and site experience to assist the FAC engineer in identifying locations for inspection.<sup>343</sup> According to Entergy's witnesses, CHECWORKS predictions focus the attention of the FAC Program on those components that may either be experiencing wear or on locations where CHECWORKS is not well calibrated or where there are other indicia of uncertainty in CHECWORKS predictions.<sup>344</sup> Then, as those witnesses stated, appropriate corrective action is taken based on actual, measured data, not on the results from CHECWORKS modeling.<sup>345</sup>

Entergy's witnesses Dr. Horowitz and Mr. Aleksick testified that, for those IPEC FAC Program components modeled by CHECWORKS, the software adequately performs its intended purpose of assisting the FAC engineer in identifying locations in need of inspection.<sup>346</sup> Based on that testimony, we find that CHECWORKS results at IPEC are sufficiently accurate to serve its purpose of providing one of several sources of information for the FAC program engineer to use in selecting inspection locations.

Dr. Horowitz and Mr. Aleksick also testified that, based on the recent IPEC CHECWORKS reports, an average of approximately 55% of the analysis lines across both plants are calibrated<sup>347</sup> and the line correction factors<sup>348</sup> are in range approximately 70% of the time.<sup>349</sup> These results, according to Entergy's witnesses, are typical of FAC Programs they have reviewed throughout their careers, and are sufficient for CHECWORKS to serve its intended function as one of several screening tools used to focus the attention of the FAC engineer on lines that may

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<sup>342</sup> Entergy RK-TC-2 Testimony at 77 (Ex. ENTR00029).

<sup>343</sup> Tr. at 1294-95 (Mr. Aleksick for Entergy); Entergy RK-TC-2 Testimony at 57 (Ex. ENTR00029). The software is designed to provide a best estimate of wear due to FAC. Entergy RK-TC-2 Testimony at 76-77 (Ex. ENTR00029).

<sup>344</sup> Entergy RK-TC-2 Testimony at 59-61, 81 (Ex. ENTR00029) (citing NSAC-202L-R3 at 4-1, 4-7 (Ex. RIV000012)); Tr. at 1604 (Mr. Aleksick for Entergy).

<sup>345</sup> Entergy RK-TC-2 Testimony at 77.

<sup>346</sup> *Id.*

<sup>347</sup> Generally, a calibrated line in this context refers to an analysis line that meets a number of criteria. For this contention the most relevant criterion is that the analysis line should have a line correction factor (see below) between 0.5 and 2.5. An analysis line is one or more physical lines of piping that have been analyzed together. *See* NSAC-202L-R3, at 4-1 (Ex. RIV000012).

<sup>348</sup> In the context of the CHECWORKS code, line correction factor is defined as the median value of the ratios of measured wear for a given component divided by its predicted wear for a particular set of piping lines (referred to as an analysis line). A line correction factor of 1.0 is considered ideal as the measured wear equals the predicted wear (median value). *See id.*

<sup>349</sup> Entergy RK-TC-2 Testimony at 63-64.

be experiencing wear and on lines where the wear rate is not being accurately predicted.<sup>350</sup> In understanding these results, Entergy witness Mr. Aleksick pointed out that a primary reason analysis lines are not calibrated is related to the very low wear rate that is often lower than the measurement uncertainty.<sup>351</sup>

Entergy's witnesses concluded, and we agree based on the unrebutted information they provided, that CHECWORKS is providing useful information to the IPEC FAC Program engineer.<sup>352</sup> We find that extended benchmarking is not required because CHECWORKS is sufficiently self-calibrating to properly perform its intended screening and ranking function.

#### **4. Wall-Thinning Management of Steam Generator Components**

Dr. Hopenfeld on behalf of Riverkeeper testified that “[c]omponents inside the steam generators, as well as valves and blowdown lines, are important safety/risk-significant components that are highly vulnerable to FAC and fall within the license renewal rule, and yet are not monitored at all by CHECWORKS.”<sup>353</sup> For the following reasons, however, we find no deficiency in Entergy’s management of potential FAC in steam generator components or steam generator blowdown lines.

Using the steam generator feedwater ring as an example, Dr. Hopenfeld testified that this component “is subjected to very high turbulence especially at the flow stagnation area, yet is not monitored by CHECWORKS to determine inspection intervals.”<sup>354</sup> He found this problematic, noting that the lack of CHECWORKS monitoring “fails to ensure that the steam generator will maintain its integrity, in particular, during design basis accidents such as main steam-line breaks and station blackouts.”<sup>355</sup> He further testified that EPRI’s guidance in NSAC-202L “does not recommend the use of tools other than a quantitative predictive model such as CHECWORKS.”<sup>356</sup>

Entergy witnesses agreed that the ‘FAC Program does not cover components inside the steam generators, such as the feedwater distribution ring’<sup>357</sup> but, “[i]nstead, those components are inspected under the Steam Generator Integrity Program . . . .”<sup>358</sup> Mr. Azevedo testified that “early during the original steam

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<sup>350</sup> *Id.* at 64; Tr. at 1641-42 (Mr. Aleksick for Entergy), 1670-71 (Mr. Azevedo for Entergy).

<sup>351</sup> Tr. at 1753 (Mr. Aleksick for Entergy).

<sup>352</sup> Entergy RK-TC-2 Testimony at 64 (Ex. ENTR00029).

<sup>353</sup> Riverkeeper RK-TC-2 Rebuttal Testimony at 28, 16-18 (Ex. RIV000108).

<sup>354</sup> *Id.* at 28.

<sup>355</sup> *Id.*

<sup>356</sup> *Id.* (citing NSAC-202L-R3 (Ex. RIV000012)).

<sup>357</sup> Entergy RK-TC-2 Testimony at 40 (Ex. ENTR00029).

<sup>358</sup> *Id.* The efficacy of the Steam Generator Integrity Program is not challenged in this contention.

generator design, there were issues with FAC and the feed rings in the J-tubes. However, both Indian Point Units 2 and 3 have replacement steam generators.”<sup>359</sup> Mr. Azevedo went on to state that, based on inspections that have been completed, “the current Indian Point 2 and 3 steam generators are not susceptible to feed ring wear.”<sup>360</sup> Responding to a question about whether any steam generator components are susceptible to FAC, Mr. Azevedo testified that “they could have been because of the original design, but the current steam generators, no.”<sup>361</sup> Dr. Hopenfeld responded to Entergy’s testimony by stating that he had based his conclusions on San Onofre prior to the installation of the replacement steam generators at Indian Point.<sup>362</sup>

Based on the record before us, the Board finds that not managing the steam generator components for FAC with CHECWORKS is of no consequence at IPEC. First, the relevant aging effects are being managed under the steam generators’ own AMP — the IPEC Steam Generator Integrity Program, which is not being challenged in this contention. Second, consistent with Mr. Azevedo’s testimony, we conclude that the replacement steam generators have reduced the potential for the feedwater distribution ring in the steam generators to be susceptible to FAC. Accordingly, the Board finds no deficiency in Entergy’s FAC AMP for not managing FAC in steam generator components or steam generator blowdown lines.

##### **5. Wall-Thinning Prediction by Means Other Than CHECWORKS**

Lastly, we address Riverkeeper’s argument challenging the adequacy of the “other tools” Entergy indicated it used to select inspection locations as part of Entergy’s FAC AMP.<sup>363</sup> Riverkeeper witness Dr. Hopenfeld testified that these “other tools” were not “described in sufficient detail to allow a thorough assessment of their effectiveness for managing FAC or to draw meaningful conclusions about the validity of their performance.”<sup>364</sup> Focusing on Entergy’s use of other

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<sup>359</sup> Tr. at 1521 (Mr. Azevedo for Entergy).

<sup>360</sup> *Id.*

<sup>361</sup> Tr. at 1522 (Mr. Azevedo for Entergy).

<sup>362</sup> Tr. at 1522-23 (Dr. Hopenfeld for Riverkeeper) (referencing testimony by Entergy witness Mr. Azevedo).

<sup>363</sup> Riverkeeper RK-TC-2 Rebuttal Testimony at 9 (Ex. RIV000108).

<sup>364</sup> *Id.* at 16. Dr. Hopenfeld testified that in his opinion because these “other tools” account for 75% of Entergy’s FAC inspection program, it should provide a quantitative description of the predictive methodology employed for these techniques. *Id.* Dr. Hopenfeld testified that Entergy should be required to (1) describe how many components per outage are inspected by each method; (2) provide a ranking of components’ safety significance; (3) identify the size of the inspection areas relative to all

(Continued)

specifically identified tools, Dr. Hopenfeld's concern was directed at the trending of actual pipe wall thickness measurements from past outages, operating experience, information from other inspection programs, and engineering judgment.<sup>365</sup>

In assessing Dr. Hopenfeld's concerns, it bears repeating that Entergy does not use the various FAC AMP tools as "stand-alone"<sup>366</sup> methods. Instead, the various FAC inspection selection tools are used in concert.<sup>367</sup>

Turning then to the specifics of Dr. Hopenfeld's concerns, he first testified that actual pipe wall thickness measurements are only useful when used in combination with a predictive tool.<sup>368</sup> However, such trending does not "stand alone." As Entergy's witnesses testified, inspection locations that were selected based on trending may have originally been selected based on CHECWORKS.<sup>369</sup> Additionally, as Entergy's witnesses explained, trending of wear based on measured thicknesses is a reliable process because FAC wear rates under constant operating conditions are generally constant with time.<sup>370</sup>

Regarding the usefulness of operating experience, according to Dr. Hopenfeld, the validity of this "other tool" rests, at least in part, on how the CHECWORKS model processes the inputs.<sup>371</sup> In response, Entergy's witnesses testified that while operating experience is used directly to select some of the inspection locations,<sup>372</sup> it is not used in any numerical calculations of predicted wear rates.<sup>373</sup> We agree with Entergy's approach regarding this "other tool" and note that the use of operating experience in the selection of inspection locations is docu-

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FAC-susceptible locations; (4) specify what percentage of the total FAC-susceptible area in the plant is addressed with these other tools; and (5) outline how often the components are inspected, how the frequency of inspections is established, how the validity of the measurements is verified, what is the accuracy of the "other tool" predictions in relation to actual measurements, and what is the validity of each method relative to schedule inspection intervals. *Id.*

<sup>365</sup> Hopenfeld Report at 21-23 (Ex. RIVR00005); Riverkeeper RK-TC-2 Rebuttal Testimony at 9-17 (Ex. RIV000108).

<sup>366</sup> Hopenfeld Report at 21 (Ex. RIVR00005).

<sup>367</sup> See Tr. at 1610 (Mr. Aleksick for Entergy) (explaining that a "variety of techniques" are used in a "complementary manner"); see also *infra* Section III.D.5.

<sup>368</sup> Riverkeeper RK-TC-2 Testimony at 13 (Ex. RIV00003); Hopenfeld Report at 21 (Ex. RIVR-00005); Riverkeeper RK-TC-2 Rebuttal Testimony at 11-14 (Ex. RIV000108).

<sup>369</sup> See, e.g., Entergy RK-TC-2 Testimony at 54-55 (Ex. ENTR00029).

<sup>370</sup> *Id.* at 32. Additionally, operating experience has shown trending to be reliable. *Id.* at 69-79. Dr. Hopenfeld acknowledged at the hearing that if the rate of FAC is constant with time, then trending would be an effective tool to manage FAC. Tr. at 1493 (Dr. Hopenfeld for Riverkeeper).

<sup>371</sup> Riverkeeper RK-TC-2 Testimony at 13 (Ex. RIV00003).

<sup>372</sup> Entergy RK-TC-2 Testimony at 47 (Ex. ENTR00029).

<sup>373</sup> *Id.* at 47, 53-54.

mented in detail in Attachment A of the IPEC System Susceptibility Evaluation Reports.<sup>374</sup>

Lastly, Dr. Hopenfeld testified that Entergy's FAC AMP does not define "engineering judgment" in relation to FAC inspections and the role that this "other tool" plays in inspection scope selection.<sup>375</sup> Engineering judgment, however, is intrinsically subjective.<sup>376</sup> Moreover, given the other more quantitative, analytical tools in the program, we find that the subjectivity of engineering judgment does not create a deficiency in Entergy's FAC AMP.<sup>377</sup>

In sum, we find that Entergy uses the "other" FAC inspection selection tools in concert with CHECWORKS. Furthermore, the Applicant has provided sufficient details to assess the effectiveness of these "other tools" for managing FAC.

#### E. Conclusions of Law

The preponderance of the evidence fully supports the conclusion that Entergy has demonstrated that the effects of aging from FAC on the intended functions of the piping and components susceptible to FAC will be adequately managed for the PEO as required by 10 C.F.R. § 54.21(a)(3). The issues regarding the adequacy of Entergy's AMP for the management of flow-accelerated corrosion raised by RK-TC-2 have been resolved in favor of the Applicant and do not prevent the NRC from issuing the requested license renewal.

### IV. SAFETY CONTENTION NYS-5 (BURIED PIPES)

#### A. Statement of Contention NYS-5

NYS-5, a safety contention that challenges the aging management of buried pipes, as litigated on December 10 and 11, 2012, reads as follows:

The LRA does not provide [an] adequate AMP for buried pipes, tanks, and transfer canals that contain radioactive fluid that meet 10 C.F.R. § 54.4(a) criteria. In

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<sup>374</sup> See IP2 SSE Report, Attach. A (Ex. ENT000048); IP3 SSE Report, Attach. A (Ex. ENT000049). A table of important industry events and their applicability to IPEC was compiled into Industry FAC Experience Tables.

<sup>375</sup> Riverkeeper RK-TC-2 Testimony at 14 (Ex. RIV000003); Hopenfeld Report at 22 (Ex. RIVR-00005).

<sup>376</sup> Riverkeeper RK-TC-2 Testimony at 14 (Ex. RIV000003); Entergy RK-TC-2 Testimony at 48 (Ex. ENTR00029).

<sup>377</sup> As Entergy's witnesses testified, engineering judgment, moreover, is only used to select a relatively small percentage of the inspection scope in any given refueling outage. Entergy RK-TC-2 Testimony at 53-54 (Ex. ENTR00029).

addition, the LRA is not clear whether an AMP for IP1 buried SSCs that are being used by IP2 and IP3 exists, and whether the LRA is adequate if it does exist.<sup>378</sup>

## B. NYS-5 Background

### 1. NYS-5 Procedural History

#### a. Contention Admissibility

NYS-5 challenges the adequacy of the AMP for IP2 and IP3 to manage the effects of aging during the PEO on buried pipes and tanks that may contain radioactive fluids. More specifically, New York alleges that the LRA does not satisfy 10 C.F.R. §§ 54.21 and 54.29(a) because the LRA does not mandate adequate inspection and monitoring for corrosion or leaks in all buried SSCs that may contain radioactively contaminated water or other fluids and therefore it does not demonstrate that the effects of aging will be adequately managed for the PEO.<sup>379</sup>

In admitting NYS-5, we stated that the questions to be addressed at hearing will include, *inter alia*, “whether, and to what extent, inspections of buried SSCs containing radioactive fluids, a leak prevention program, and monitoring to detect future excursions are needed as part of Entergy’s AMP for these components.”<sup>380</sup> We further stated that “proposed inspection and monitoring details will come before this Board” to provide assurances that the intended function of relevant SSCs “will be maintained for the license renewal period, and specifically, to detect, prevent, or mitigate the effects of future inadvertent radiological releases as they might affect the safety function of the buried SSCs and potentially impact health.”<sup>381</sup>

#### b. The Aging Management Program in the License Renewal Application

On April 23, 2007, Entergy filed its LRA for IP2 and IP3.<sup>382</sup> In Appendix A, sections A.2.1.5 (Buried Piping and Tanks Inspection Program — IP2) and A.3.1.5 (Buried Piping and Tanks Inspection Program — IP3), Entergy described the IP2 and IP3 AMPs for buried pipes and tanks.<sup>383</sup> In Appendix B, section B.1.6, Entergy described these programs in slightly more detail.<sup>384</sup> The “Program

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<sup>378</sup> LBP-08-13, 68 NRC at 218.

<sup>379</sup> *Id.*

<sup>380</sup> *Id.* at 81.

<sup>381</sup> *Id.*

<sup>382</sup> LRA at B-27 to -28 (Ex. ENT00015B).

<sup>383</sup> *Id.* at A-19, A-46.

<sup>384</sup> *Id.* at B-27 to -28.

Description” contained in section B.1.6 stated that the “Buried Piping and Tanks Inspection Program (BPTIP) is a new program that includes (a) preventative measures to mitigate corrosion and (b) inspections to manage the effects of corrosion on the pressure-retaining capability of buried carbon steel, gray cast iron, and stainless steel components.”<sup>385</sup> Section B.1.6 identified the components to which the program applies, stated that the program will be implemented prior to the PEO, provided a description of inspection practice, and further confirmed that the preventive measures will be in accordance with industry practice.<sup>386</sup>

Entergy’s LRA as originally filed stated that the BPTIP will be consistent with program attributes (based on industry operating experience) described in NUREG-1801 (GALL-1) with no exceptions and no enhancements.<sup>387</sup> As expressed in the original LRA, in Entergy’s judgment, “[t]he [BPTIP] will be effective for managing aging effects since it will incorporate proven monitoring techniques, acceptance criteria, corrective actions, and administrative controls.”<sup>388</sup> The entirety of Entergy’s AMP, absent the GALL-1 reference, was contained on one-and-a-half pages.

The sections of GALL-1 provide detail concerning the implementation and requirements of each program. For example, the “Program Description” in GALL-1 stated that “preventive measures are in accordance with standard industry practice for maintaining external coatings and wrappings, buried piping and tanks will be inspected when they are excavated during maintenance and when a pipe is dug up and inspected for any reason.”<sup>389</sup> Additionally, section XI.M34 of GALL-1 presented topics including preventive actions, monitoring and inspection parameters, detection of aging effects, monitoring and trending, acceptance criteria, corrective actions, confirmation process, administrative controls, and operating experience.<sup>390</sup> The referenced sections also provided that, as part of this program, plant and industry operating experience would be considered prior to, and during, program implementation.<sup>391</sup>

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<sup>385</sup> *Id.* at B-27.

<sup>386</sup> *Id.*

<sup>387</sup> *Id.* at B-27 to -28.

<sup>388</sup> *Id.*

<sup>389</sup> GALL-1, at XI.M-111 to -112 (Ex. NYS00146C).

<sup>390</sup> *Id.*

<sup>391</sup> *Id.*; NL-09-106, Letter from Fred Dacimo, Vice President, IPEC, to NRC Document Control Desk, Questions Regarding Buried Piping Inspections, Attach. 1 at 3 (July 27, 2009) (Ex. NYS000203) [hereinafter NL-09-106].

c. *Subsequent Amendments and Submittals to Applicant's Aging Management Program*

Following the submission of its LRA in 2007, Entergy amended its LRA for buried pipes and tanks. In July of 2009, Entergy modified its AMP as a result of an evaluation of recent site operating experience at Indian Point and other industry plants, related industry and Entergy fleet initiatives, and the NRC Staff license renewal RAIs.<sup>392</sup> As of July 2009, the AMP for buried piping and tanks, with deletions and additions noted from the original program in the LRA, was documented in a letter from Entergy's Nuclear Licensing (NL) Department numbered NL-09-106.<sup>393</sup>

Entergy again revised its AMP for buried pipes and tanks in March 2011 in response to NRC Staff RAIs to add details on its buried piping inspections, including the number of total inspections planned for each unit before and during the PEO, the number of excavated direct visual inspections of external surfaces, the piping length to be excavated for direct visual inspections, the type of material to be inspected, and the piping category to be inspected.<sup>394</sup> Thereafter, on July 14, 2011 (as amended by a letter dated July 27, 2011), Entergy revised LRA §§ A.2.1.5 and A.3.1.5 (the parts of the UFSAR Supplement dealing with buried pipes for IP2 and IP3, respectively) to reflect an increased number and frequency of piping inspections as well as additional soil testing so as to be consistent with Entergy's RAI responses.<sup>395</sup> In these revisions, Entergy specified that thirty-four direct inspections of buried pipe will be performed during the 10-year period prior to the PEO and that thirty direct inspections will be performed during each 10-year period of the PEO (for a total of sixty direct inspections during the PEO). Entergy's inspection program for buried pipes is also outlined beginning at page

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<sup>392</sup> Testimony of Entergy Witnesses Alan Cox, Ted Ivey, Nelson Azevedo, Robert Lee, Stephen Biagiotti, and Jon Cavallo Concerning Contention NYS-5 (Buried Pipes and Tanks) (Dec. 6, 2012) at 52, 58 (Ex. ENTR30373) [hereinafter Entergy NYS-5 Testimony]; *see also* NL-09-106, Letter from Fred Dacimo, Vice President, IPEC, to NRC Document Control Desk, Questions Regarding Buried Piping Inspections, Attach. 1 at 3 (July 27, 2009) (Ex. NYS000203) [hereinafter NL-09-106].

<sup>393</sup> See NL-09-106 (Ex. NYS000203).

<sup>394</sup> NL-11-032, Letter from Fred Dacimo, Vice President, IPEC, to NRC Document Control Desk, Response to Request for Additional Information (RAI), Attach. 1 at 3-9 (Mar. 28, 2011) (Ex. NYS000151) [hereinafter NL-11-032].

<sup>395</sup> NL-11-074, Letter from Fred Dacimo, Vice President, IPEC, to NRC Document Control Desk, Response to Request for Additional Information (RAI), Attach. 1 at 2-3 (July 14, 2011) (Ex. NYS000152) [hereinafter NL-11-074]; NL-11-090, Letter from Fred Dacimo, Vice President, IPEC, to NRC Document Control Desk, Response to Request for Additional Information (RAI), Attach. 1 at 203 (July 27, 2011) (Ex. NYS000153) [hereinafter NL-11-090]. NL-13-037, Letter from Fred Dacimo, Entergy, to NRC, Revision to the Response to Request for Additional information (RAI), Attach. 1 (Mar. 5, 2013) (Ex. ENT000606) [hereinafter NL-13-037].

354, in our discussion of the need for cathodic protection for buried piping at IPEC.

The Final Safety Evaluation Report (FSER) issued by the NRC Staff in August of 2011 states that, after completing its review, the Staff concluded that Entergy's AMP was consistent with GALL-1 and that, based on its review of Entergy's response to NRC Staff RAIs 3.0.3.1.2-1<sup>396</sup> and 3.0.3.1.2-2,<sup>397</sup> aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the PEO, as required by 10 C.F.R. § 54.21(a)(3).<sup>398</sup> In its review of the July 14, 2011 and July 27, 2011 supplements for Entergy's AMP<sup>399</sup> (UFSAR) the Staff concluded that they provided an adequate summary description of the programs as required by 10 C.F.R. § 54.21(d).<sup>400</sup>

## ***2. Legal Standards and Issues Related to NYS-5***

As discussed above, 10 C.F.R. §§ 54.21(a)(3) and 54.29(a) provide the applicable legal standards for the evaluation of Indian Point's AMP for buried pipes and tanks. These regulations require that Entergy must demonstrate, to the point of providing "reasonable assurance," that the intended functions of these components will be maintained in accordance with the CLB for the PEO, as previously discussed in Section II.B, above.<sup>401</sup>

As explained in more detail in our discussion of RK-TC-2 beginning at page 290, in determining whether an applicant's LRA provides the requisite "reasonable assurance," the Staff conducts a safety review of the application, governed by 10 C.F.R. Part 54 and principally guided by two documents, GALL and the SRP-LR.<sup>402</sup>

## ***3. Evidentiary Record Related to NYS-5***

### *a. Identification of Witnesses Who Provided Testimony Relevant to NYS-5*

Entergy presented six witnesses on NYS-5 — Alan B. Cox,<sup>403</sup> Ted Ivy,<sup>404</sup>

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<sup>396</sup> NL-11-032 (Ex. NYS000151).

<sup>397</sup> NL-11-074 (Ex. NYS000152).

<sup>398</sup> NRR, SER Related to the License Renewal of Indian Point Nuclear Generating Unit Nos. 2 and 3, NUREG-1930, Supp. 1, at 3-5 (Aug. 2011) (Ex. NYS000160) [hereinafter SER Supp. 1].

<sup>399</sup> See NL-11-074 (Ex. NYS000152); NL-11-090 (Ex. NYS000153).

<sup>400</sup> SER Supp. 1, at 3-5 (Ex. NYS000160).

<sup>401</sup> 10 C.F.R. §§ 54.21(a)(3), 54.29(a).

<sup>402</sup> See *supra* Section II.B.

<sup>403</sup> Curriculum Vitae of Alan B. Cox (Ex. ENT000031).

<sup>404</sup> Curriculum Vitae of Ted Ivy (Ex. ENT000374).

Nelson F. Azevedo,<sup>405</sup> Robert Lee,<sup>406</sup> Stephen Biagiotti,<sup>407</sup> and Jon Cavallo.<sup>408</sup> On December 6, 2012, Entergy filed revised written direct testimony of these five witnesses<sup>409</sup> and on January 15, 2013, this revised testimony was admitted as evidence.<sup>410</sup>

The NRC Staff presented two witnesses to provide testimony on NYS-5 — Kimberly J. Green<sup>411</sup> and William C. Holston.<sup>412</sup> On December 7, 2012, the Staff filed the revised written direct testimony of these two witnesses.<sup>413</sup> This testimony was admitted on January 15, 2013.<sup>414</sup>

New York presented one witness to provide testimony on NYS-5 — Dr. David J. Duquette.<sup>415</sup> On December 16, 2011, New York filed the written direct testimony of Dr. Duquette in support of its position on NYS-5.<sup>416</sup> On October 5, 2012, New York filed the written rebuttal testimony of Dr. Duquette.<sup>417</sup> These two submissions were admitted by the Board on October 15, 2012.<sup>418</sup>

*b. Identification of Admitted Exhibits Relevant to NYS-5*

Relevant to NYS-5, Entergy submitted ninety-seven exhibits, the Staff submitted seventeen exhibits, and New York submitted sixty-three exhibits.<sup>419</sup> These

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<sup>405</sup> Curriculum Vitae of Nelson F. Azevedo (Ex. ENT000032).

<sup>406</sup> Curriculum Vitae of Robert C. Lee (Ex. ENT000375).

<sup>407</sup> Curriculum Vitae of Stephen F. Biagiotti, Jr. (Ex. ENT000376).

<sup>408</sup> Curriculum Vitae of Jon R. Cavallo (Ex. ENTR00377).

<sup>409</sup> See Entergy NYS-5 Testimony (Ex. ENTR30373).

<sup>410</sup> See Memorandum and Order (Admitting Entergy's Exhibits, Granting New York's Motion, and Admitting NRC's Exhibits) (Jan. 15, 2013) (unpublished).

<sup>411</sup> Kimberly J. Green, Statement of Professional Qualifications (Mar. 29, 2012) (Ex. NRC000017).

<sup>412</sup> William C. Holston, Statement of Professional Qualifications (Mar. 29, 2012) (Ex. NRC000018).

<sup>413</sup> See NRC Staff's Testimony of Kimberly J. Green and William C. Holston Concerning Contention NYS-5 (Buried Pipes and Tanks) (Dec. 7, 2012) (Ex. NRCR20016) [hereinafter NRC Staff NYS-5 Testimony].

<sup>414</sup> See Memorandum and Order (Admitting Entergy's Exhibits, Granting New York's Motion, and Admitting NRC's Exhibits) (Jan. 15, 2013) (unpublished).

<sup>415</sup> Curriculum Vitae of David J. Duquette (Ex. NYS000166).

<sup>416</sup> See Pre-Filed Written Testimony of Dr. David J. Duquette, Ph.D. Regarding Contention NYS-5 (Dec. 16, 2011) (Ex. NYS000164) [hereinafter New York NYS-5 Testimony].

<sup>417</sup> See Pre-Filed Written Rebuttal Testimony of Dr. David J. Duquette Regarding Contention NYS-5 (Oct. 5, 2012) (Ex. NYSR20399) [hereinafter New York NYS-5 Rebuttal Testimony].

<sup>418</sup> Tr. at 1269 (Judge McDade).

<sup>419</sup> See Appendix B — Partial Initial Decision.

exhibits were admitted into the record on October 15, 2012, January 15, 2013, and August 20, 2013.<sup>420</sup>

*c. Relevant NRC Staff Guidance Documents*

1. NUREG-1800, Rev. 1, “Standard Review Plan for Review of License Renewal Application for Nuclear Power Plants” (Sept. 2005) (SRP-LR) (Ex. NYS000195). A description of this document was provided at page 292, above, as it also pertains to RK-TC-2.
2. NUREG-1801, Rev. 1, “Generic Aging Lessons Learned (GALL) Report” (Sept. 2005) (GALL-1) (Exs. NYS00146A-C). A description of this document was provided at page 292, above, as it also pertains to RK-TC-2.
3. NUREG-1801, Rev. 2, “Generic Aging Lessons Learned (GALL) Report” (Dec. 2010) (GALL-2) (Exs. NYS00147A-D). A description of this document was provided at page 292, above, as it also pertains to RK-TC-2.

**C. Issues Raised in NYS-5**

NYS-5 raises numerous issues related to the proper assessment of the adequacy of Entergy’s AMP for buried pipes and tanks that contain radioactivity. These related issues are: (1) the scope of the contention; (2) the intended functions of buried pipes; (3) the adequacy of Entergy’s AMP as submitted with its LRA; (4) amendments to the Applicant’s AMP for buried pipes; (5) IPEC’s corrosion potential, soil corrosivity, historic leaks, corrective actions, inspections, cathodic protection, and proposed soil testing and inspection program for Entergy’s amended AMP; (6) the Applicant’s adherence to license commitments and specified procedures; and (7) the Staff’s conclusions relating to Entergy’s AMP for buried pipes. The evidence for each of these issues and the findings of fact are discussed in the subsequent subsections. This is followed by a summary of these findings of fact and the Board’s conclusions of law.

**D. Scope of NYS-5**

***1. Evidence Related to the Scope of NYS-5***

Evidence presented by New York was more narrowly focused than the contention was written and admitted. Accordingly, for the reasons explained below,

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<sup>420</sup>Tr. at 1269 (Judge McDade); Licensing Board Order (Scheduling Post-Hearing Matters and Ruling on Motions to File Additional Exhibits) (Jan. 15, 2013) (unpublished); Licensing Board Order (Admitting Entergy’s Exhibits) (Aug. 20, 2013) (unpublished).

only the adequacy of Entergy's AMP for buried piping that conveys, or may contain, radioactive fluids is within the scope of NYS-5.

NYS-5 as submitted alleged that Entergy's AMP for buried pipes did not meet regulatory standards because "it does not provide adequate inspection and monitoring for corrosion or leaks in all buried systems, structures, and components that may convey or contain radioactively contaminated water or other fluids and/or may be important for plant safety."<sup>421</sup> At issue here is whether the scope of this contention was limited by the evidence presented.

Initially, in outlining the scope of this contention, it is important to note the difference between buried and underground piping. Buried piping is piping that is below grade that is exposed on its external surfaces to soil or concrete.<sup>422</sup> In contrast, underground pipes are below grade, but are contained within a tunnel or vault such that they are in contact with air but are located where access for inspection is restricted.<sup>423</sup> This definition is consistent with the current description of the Buried Piping and Tanks Program presented in GALL-2.<sup>424</sup> NYS-5 does not challenge the aging management of underground piping.<sup>425</sup>

Entergy's LRA includes a Buried Piping and Tanks Inspection Program (BP-TIP), which lists the systems that are covered by Entergy's aging management review, including: service water, fuel, city water, safety injection, fire protection, security generator, plant drains, riverwater, and auxiliary feedwater (AFW) systems.<sup>426</sup> Mr. Holston, testifying for the Staff, stated that of these systems, safety injection and AFW systems have the potential to contain radioactivity during normal operations, while service water, plant drains, and city water system have the potential to contain radioactivity during abnormal operations.<sup>427</sup>

As noted by the Staff, the buried piping and tanks within this AMP contain both radioactive and nonradioactive fluids, but, according to Mr. Cox for Entergy, the percentage of in-scope piping and tanks containing radionuclides is less than the percentage of in-scope SSCs with no radioactivity.<sup>428</sup> Furthermore, Entergy witnesses testified that all in-scope buried pipes are to be monitored under

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<sup>421</sup> LBP-08-13, 68 NRC 43, 78 (2008). Initially, NYS-5 challenged the degree to which IP1 piping was included in Entergy's AMP for buried pipes. However, New York's testimony made no reference to IP1, and its expert witness, Dr. Duquette, confirmed that whatever IP1 piping that is within scope is covered by the AMP and is no longer an issue. *See* Tr. at 3494 (Dr. Duquette for New York).

<sup>422</sup> Tr. at 3572-73 (Mr. Holston for the NRC Staff).

<sup>423</sup> NL-11-032, Attach. 1 at 8 (Ex. NYS000151).

<sup>424</sup> GALL-2, at XI.M41-1 (Ex. NYS00147D).

<sup>425</sup> LBP-08-13, 68 NRC at 218.

<sup>426</sup> LRA at B-27 (Ex. ENT00015B); Tr. at 3308-09 (Mr. Holston for the NRC Staff).

<sup>427</sup> NRC Staff NYS-5 Testimony at 18-19 (Ex. NRCR20016); Tr. at 3697-98 (Mr. Holston for the NRC Staff).

<sup>428</sup> *See* Tr. at 3580-81 (Mr. Cox for Entergy).

its program whether or not they contain radioactivity.<sup>429</sup> Although Entergy's witnesses testified that tanks are also part of license renewal,<sup>430</sup> New York raised no technical criticisms of Entergy's program for these tanks,<sup>431</sup> and New York's testimony did not allege that buried tanks are within the scope of NYS-5.

## **2. Findings Related to the Scope of NYS-5**

The Board admitted NYS-5 to the extent that it challenged the adequacy of Entergy's AMP for those buried pipes, tanks, and transfer canals that contain radioactive fluid so as to fall within 10 C.F.R. § 54.4(a) criteria.<sup>432</sup> This contention, however, evolved during the lengthy prehearing period, and now challenges only Entergy's AMP for buried piping that conveys or may contain radioactive fluids. As noted above, while six buried tanks at IPEC are part of Entergy's BPTIP and fall under license renewal,<sup>433</sup> New York did not contest the adequacy of Entergy's program for these tanks, and, as a result, these components are not addressed further in this decision.

New York's contention does not encompass the entirety of the Applicant's AMP for buried pipes but challenges only a limited class of SSCs that may contain radioactive fluids.<sup>434</sup> We believe, however, that this distinction has little import in that a ruling on the adequacy of Entergy's AMP, as it pertains to buried pipes falling under license renewal that contain radioactivity will necessarily address all buried pipes within the scope of license renewal. New York submitted no evidence or testimony concerning tanks and underground pipes.<sup>435</sup>

## **E. Intended Functions of Buried Pipes**

### **1. Evidence Related to the Intended Functions of Buried Pipes**

The purpose of an AMP is to insure that structures and components perform their intended functions during the PEO. Accordingly, to assess the adequacy of an AMP we must understand the intended function of the buried pipes.

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<sup>429</sup> Entergy NYS-5 Testimony at 57 (Ex. ENTR30373).

<sup>430</sup> *Id.* at 31.

<sup>431</sup> Tr. at 3584 (Dr. Duquette for New York).

<sup>432</sup> LBP-08-13, 68 NRC at 78.

<sup>433</sup> Entergy NYS-5 Testimony at 31 (Ex. ENTR30373).

<sup>434</sup> The piping and tanks within the scope of Part 54 are defined by 10 C.F.R. § 54.4, and, as pointed out in this decision, is consistent with GALL-2 that includes both buried and underground SSCs.

<sup>435</sup> For simplicity, the rest of this decision will only refer to Entergy's "buried pipe" program, recognizing that the AMP also covers buried tanks and underground pipes that are not part of this contention.

Table 2.0-1 of Entergy's LRA states that the function of buried pipes is to provide "pressure boundary integrity such that adequate flow and pressure can be delivered. This includes maintaining structural integrity and preventing leakage or spray."<sup>436</sup> Suggesting that this definition of pressure boundary is consistent with the Staff's definition in its SRP-LR<sup>437</sup> and 10 C.F.R. § 54.4(a)(2), Ms. Green and Mr. Holston testified for the NRC Staff that potential leakage is not a safety consideration for license renewal so long as any leakage or spray from the system does not impact the ability of the SSC to deliver flow at an adequate pressure.<sup>438</sup>

Dr. Duquette, testifying on behalf of New York, stated that he considers leaks in a pipe to constitute failure.<sup>439</sup> In his opinion, "a piping system is . . . supposed to contain a fluid . . . , and if it can't contain that fluid, then it's at failure."<sup>440</sup> Specifically, he posited that a small leak, if left undetected could grow into a larger leak, which could compromise the function of a pipe and compromise its ability to maintain a pressure boundary.<sup>441</sup>

Dr. Duquette further testified that the leaking of radioactive fluids constitutes failure of the system that, like all safety-related pipes carrying radioactive fluid, was not supposed to fail.<sup>442</sup> Accordingly, in Dr. Duquette's opinion, "if a failure has already occurred, independent of the root cause of that failure, absent a comprehensive inspection or protection of the system, there can be no guarantee that future unpredictable failures will not occur in other safety related piping."<sup>443</sup> While recognizing that a leak would not necessarily make a difference in the flow rate through a pipe surrounded by soil, Dr. Duquette testified that controlling environmental impacts is part of aging management functions, even if the change in flow rate with the leakage may not be discernible and the pipeline is still achieving its primary function of moving fluid from one place to another.<sup>444</sup> Nevertheless, he also conceded that zero radioactive release is an unreasonable criterion.<sup>445</sup>

Controlling releases of radioactivity from leaks as an intended function of piping was addressed by both the NRC Staff and Entergy. Mr. Holston, testifying on behalf of the NRC Staff, stated that "controlling the releases of radioactivity is

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<sup>436</sup> LRA at 2.0-2, tbl. 2.0-1 (Ex. ENT00015A).

<sup>437</sup> SRP-LR Rev. 1, at 2.1-17, tbl. 2.1-4(b) (Ex. NYS000195).

<sup>438</sup> NRC Staff NYS-5 Testimony at 25-26 (Ex. NRCR20016).

<sup>439</sup> *Id.* at 15.

<sup>440</sup> Tr. at 3554 (Dr. Duquette for New York).

<sup>441</sup> Tr. at 3965 (Dr. Duquette for New York).

<sup>442</sup> *Id.*

<sup>443</sup> New York NYS-5 Rebuttal Testimony at 6 (Ex. NYSR20399).

<sup>444</sup> Tr. at 3557-59, 3561 (Dr. Duquette for New York).

<sup>445</sup> Tr. at 3565 (Dr. Duquette for New York).

a safety related function” when it occurs as a result of an accident.<sup>446</sup> He testified that, in his opinion, the goal is “to control off-site dose that relates to health and safety, but as long as that piping system can deliver the required flow, it mitigates those releases and you won’t see any change in release whether that pipe is leaking or not leaking.”<sup>447</sup>

According to Mr. Holston, one of the premises of license renewal is that the current licensing basis (CLB) will continue into the PEO, and that the CLB already addresses the control of radioactive effluents.<sup>448</sup> But, Mr. Holston conceded that the mere fact that an SSC is to be maintained under the CLB does not exclude it from consideration for AMR as there are many AMPs that are covered under the maintenance rule.<sup>449</sup>

Mr. Cox testifying for Entergy echoed the position of the NRC Staff that the intended function of a pipe is to provide a pressure boundary to maintain flow,<sup>450</sup> but added that, in his experience, if the leaks from a pipe are controlled sufficiently to maintain its pressure boundary and flow, then the liquid release will not be sufficient to exceed the dose limits referenced in 10 C.F.R. Part 54.<sup>451</sup> He stated that it was his understanding that the focus is on the need to maintain the flow necessary to mitigate the effects of an accident by keeping the core cooled, and “[i]t’s not directed at making sure you don’t have leakage from the pipe . . . [U]ltimately you’re concerned about dose limits, but you’re more concerned about making [sure] the systems that are there to mitigate the consequences of the accident” are operational because radiation levels from an accident far exceed those from holes in buried piping.<sup>452</sup> Mr. Cox concluded that the release of radioactivity from leaky pipes would result in very low dose exposure that, in his judgment, would not challenge the regulatory limits.<sup>453</sup>

## **2. Findings Related to the Intended Functions of Buried Pipes**

The scope of license renewal, including buried piping, addresses two categories of SSCs. In accordance with 10 C.F.R. § 54.4(a)(1), the first category consists of all safety-related SSCs that are relied upon to remain functional to ensure the integrity of the reactor coolant pressure boundary, the capability to shut down and

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<sup>446</sup> Tr. at 3572 (Mr. Holston for the NRC Staff).

<sup>447</sup> *Id.*

<sup>448</sup> Tr. at 3570 (Mr. Holston for the NRC Staff).

<sup>449</sup> Tr. at 3574 (Mr. Holston for the NRC Staff).

<sup>450</sup> Tr. at 3576-77 (Mr. Cox for Entergy).

<sup>451</sup> Tr. at 3578 (Mr. Cox for Entergy); *see also* 10 C.F.R. § 54.35 (referencing 10 C.F.R. Parts 20, 50, 100).

<sup>452</sup> Tr. at 3579-80 (Mr. Cox for Entergy).

<sup>453</sup> *Id.*

maintain the safe shutdown of the reactor, or the capability to prevent or mitigate the consequences of accidents which could result in potential offsite radiation exposures. The second category described in 10 C.F.R. § 54.4(a)(2) consists of all nonsafety-related SSCs, whose failure could prevent satisfactory accomplishment of any of the safety functions identified above, including the control of excessive dose exposures.

As discussed above, the witnesses for the NRC Staff and Entergy testified that the intended safety function of buried pipes that fall within the purview of license renewal is only to establish a pressure boundary for maintaining the flow or containing the storage of fluid during the PEO.<sup>454</sup> They asserted that mere leaks in a pipe would not significantly jeopardize the performance of a buried pipe to convey fluid given the restrictions to flow provided by the soil surrounding a buried pipe.<sup>455</sup> But these witnesses conceded that NRC regulations relating to license renewal are also concerned with the control of unlicensed releases of radioactivity and resulting dose exposures from these releases.<sup>456</sup> We agree.

We note that there is some evidence to support the proposition that the control of inadvertent releases of radioactivity (to assure that dose exposure limits are not exceeded) by maintaining a pressure boundary is also an intended function of buried piping. In addressing this, we find that in his testimony on behalf of Entergy, Mr. Cox was correct in his conclusion that liquid released from a leaky pipe at IPEC where the pressure boundary is maintained would not be sufficient to exceed the dose limits specified in 10 C.F.R. Part 54.<sup>457</sup> Based on this, we also find that there is no evidence to dispute Entergy's premise that, if its AMP for buried pipes at IPEC maintains the pressure boundary for the in-scope buried pipes at IPEC, it will also necessarily control radiological releases sufficiently to provide reasonable assurance that dose exposure limits are not exceeded.

## F. Adequacy of the Applicant's Initial AMP Presented in Its LRA

### *1. Evidence Related to the Adequacy of the Applicant's Initial AMP as Presented in Its LRA*

The AMP for buried pipes presented in Entergy's LRA referenced the ten program elements required by GALL-1, the version of NUREG-1801 applicable at the time Entergy's application was submitted in 2007. More specifically, Entergy stated that “[t]he Buried Piping and Tanks Inspection Program [BPTIP]

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<sup>454</sup> Tr. at 3576-77 (Mr. Cox for Entergy), 3572 (Mr. Holston for the NRC Staff).

<sup>455</sup> Tr. at 3578 (Mr. Cox for Entergy), 3572 (Mr. Holston for the NRC Staff).

<sup>456</sup> Tr. at 3580 (Mr. Cox for Entergy), 3571 (Mr. Holston for the NRC Staff).

<sup>457</sup> Tr. at 3578, 3580 (Mr. Cox for Entergy). See 10 C.F.R. § 54.35 (referencing 10 C.F.R. Parts 20, 50, 100).

will be consistent with program attributes described in NUREG-1801, Section XI.M34, Buried Piping and Tanks Inspection” with no exceptions.<sup>458</sup>

Dr. Duquette, for New York, took exception to the Staff’s positions, stating that Entergy’s AMP for buried pipes “contains very few actual commitments and “is conceptual and aspirational in nature.”<sup>459</sup> He concluded that “these bare statements are insufficient to provide an understanding of what exactly Entergy would be doing to manage aging of buried pipes.”<sup>460</sup>

Entergy and the NRC Staff maintained that merely committing to the future development of a program that is consistent with GALL was sufficient to demonstrate that the effects of aging will be adequately managed during the PEO.<sup>461</sup> Consistent with its SRP-LR, the NRC Staff witnesses opined that an applicant can take credit for a program described in GALL such that its AMP would be found acceptable in one of three ways: (1) establishing a program that is consistent with all the recommendations in GALL without exception; (2) establishing a program consistent with GALL with exceptions that expand, but not reduce, the scope of GALL; or (3) developing a completely plant-specific aging management program.<sup>462</sup> Staff witness, Mr. Holston, stated that, if an applicant commits to develop a program consistent with GALL, the demonstration of its consistency would not be achieved by details within the application, but through the NRC audit performed as part of the review of the LRA.<sup>463</sup>

As to why the NRC Staff does not require that an applicant provide a general description of the detailed procedures that the applicant will use to show how the ten elements of GALL are specifically applied to IPEC, Mr. Holston responded “that’s the way we built the process” requiring only that the applicant list the exceptions to the program in its LRA and provide enhancements to compensate for these exceptions.<sup>464</sup> According to Mr. Holston, the NRC Staff then would confirm consistency with GALL, including the exceptions and enhancements during its AMP audit.<sup>465</sup> Mr. Holston testified that, if the NRC Staff required an applicant to provide the details in its application, the LRA would be a huge document (noting that an AMP audit of one program includes review of many hundreds of pages

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<sup>458</sup> LRA at B-27 to -28 (Ex. ENT00015B).

<sup>459</sup> New York NYS-5 Testimony at 18 (Ex. NYS000164).

<sup>460</sup> *Id.* at 16.

<sup>461</sup> Entergy’s Statement of Position Regarding Contention NYS-5 (Buried Piping and Tanks) (Dec. 7, 2012) at 9 (Ex. ENTR20372); NRC Staff’s Statement of Position on Contention NYS-5 (Buried Pipes and Tanks) (Dec. 7, 2012) at 7-8 (Ex. NRCR20015).

<sup>462</sup> NRC Staff NYS-5 Testimony at 12-13 (Ex. NRCR20016); Tr. at 3389 (Mr. Holston for the NRC Staff).

<sup>463</sup> Tr. at 3323-24 (Mr. Holston for the NRC Staff).

<sup>464</sup> Tr. at 3324-25 (Mr. Holston for the NRC Staff).

<sup>465</sup> *Id.*

of procedures and reports).<sup>466</sup> But, Mr. Holston went on to concede that there is no technical reason why a summary of the details that eventually end up in the audited reports could not be included with, or amended to, the LRA to provide a more definitive demonstration of how an applicant's AMP is consistent with the attributes of GALL.<sup>467</sup>

As an example of what he viewed a fatal lack of detail, Dr. Duquette testified on behalf of New York that Entergy's AMP did not explain "what factors Entergy would take into account in performing a risk assessment or to classify its pipe, or how frequently Entergy would inspect pipes according to their priority."<sup>468</sup>

In response to Dr. Duquette, the NRC Staff witnesses testified that, in their view, "that level of detail is not required in an aging management program. Rather such details are contained in a licensee's inspection plans or procedures for implementation of its aging management programs."<sup>469</sup> Accordingly, they stated that such details "would not be subject to NRC review and approval prior to license renewal; rather, an applicant would be required to have such details available for the Staff verification during an onsite inspection prior to, or subsequent to, license renewal (pursuant to Inspection Procedure 71003 or Temporary Instruction (TI) 2516/001)."<sup>470</sup>

Testifying on behalf of the NRC Staff, Ms. Green conceded that the regulations and GALL do not expressly reject the level of detail suggested by Dr. Duquette.<sup>471</sup> She opined, however, that the requirement in 10 C.F.R. § 54.33 that "all the information that Applicant uses to support its License Renewal Application has to be maintained in an auditable and retrievable form"<sup>472</sup> supports the Staff's position that "such details are not subject to NRC review and approval prior to license renewal."<sup>473</sup> According to Ms. Green, "that is why the NRC conducts audits and later on inspections."<sup>474</sup>

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<sup>466</sup> Tr. at 3325 (Mr. Holston for the NRC Staff).

<sup>467</sup> Tr. at 3325-26 (Mr. Holston for the NRC Staff).

<sup>468</sup> New York NYS-5 Testimony at 17 (Ex. NYS000164).

<sup>469</sup> NRC Staff NYS-5 Testimony at 46 (Ex. NRCR20016). Entergy and NRC Staff often use the term "implementation" when referring to the development of the program (*see* Tr. at 3327-28 (Mr. Holston for the NRC Staff)), while the Board is more familiar with using this term to describe the actual performance of the plant-specific elements described in the already-developed program.

<sup>470</sup> NRC Staff NYS-5 Testimony at 45 (Ex. NRCR20016) (referring to NRC Inspection Manual, Temporary Instruction 2516/001, "Review of License Renewal Activities (Program Applicability: This temporary instruction (TI) applies to Indian Point Nuclear Generating Unit 2 and Pilgrim Nuclear Power Station only)" (March 30, 2011) (Ex. NRC000029)).

<sup>471</sup> Tr. at 3409 (Ms. Green for the NRC Staff).

<sup>472</sup> *Id.*

<sup>473</sup> NRC Staff NYS-5 Testimony at 45 (Ex. NRCR20016).

<sup>474</sup> Tr. at 3409 (Ms. Green for the NRC Staff).

## **2. *Findings Related to the Adequacy of the Applicant's Initial AMP as Presented in Its LRA***

Entergy's initial AMP consisted solely of statements promising to develop and to implement an AMP that would be consistent with the NRC guidance document applicable at the time the application was submitted, i.e., GALL-1.<sup>475</sup> As explained below, we find that this was insufficient to satisfy the requirements of 10 C.F.R. § 54.21(a)(3).

GALL-1 contained a two-page description of the ten general attributes that applicants need to address in their AMP for buried pipes. Consistent with the Commission's ruling in *Vermont Yankee*, and initially noted herein at page 283, above, an applicant must demonstrate, not just promise, consistency with GALL,<sup>476</sup> because simply *promising* to develop a program that would be consistent with GALL-1 *does not demonstrate* that the effects of aging are being adequately managed during the license renewal period. An applicant must present an AMP with sufficient information that the NRC will be able to "draw its own independent conclusion as to whether the applicant's programs are in fact consistent with GALL."<sup>477</sup>

To meet this mandate, we find that an applicant must provide a general description of the corporate-wide and plant-specific procedures sufficient to show that the ten elemental attributes of GALL have been addressed so as to demonstrate that the effects of aging on buried pipes will be adequately managed throughout the PEO.<sup>478</sup> Entergy's effort in its initial LRA fell well short of that mark.

If this was the end of the story, we would conclude that Entergy has not adequately demonstrated that its AMP for buried piping would manage the effects of aging in these components as required by the regulations. But, since the LRA was submitted, much activity has taken place that augments Entergy's initially deficient program description. That activity is discussed below.

## **G. Adequacy of the Applicant's Amended AMP for Buried Pipes**

### **1. *Evidence Related to the Adequacy of the Applicant's Amended AMP for Buried Pipes***

The adequacy of Entergy's current AMP for buried pipes, as amended by this new information, is reviewed in this section, and includes a discussion of

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<sup>475</sup> LRA at B-27 to -28 (Ex. ENT00015B) (referencing GALL-1 (Exs. NYS00146A-C)).

<sup>476</sup> See *Vt. Yankee*, CLI-10-17, 72 NRC at 37.

<sup>477</sup> *Id.*

<sup>478</sup> 10 C.F.R. § 54.21(a)(3).

the updated BPTIP, recent corporate programs and IPEC procedures, acceptance criteria, and corrective actions.

*a. The BPTIP*

Entergy's witnesses testified that “[t]he [updated] BPTIP manages loss of material due to external corrosion of buried piping and tanks to provide reasonable assurance that the associated systems can perform their intended functions.”<sup>479</sup> Section B.1.6 of Entergy's LRA states that “the updated BPTIP includes two key elements: (1) reliance on preventive measures (*e.g.*, protective coatings) to mitigate external corrosion and (2) inspections to manage the effects of corrosion on the pressure retaining capability of buried carbon steel, gray cast iron, and stainless steel components.”<sup>480</sup> According to Entergy's witnesses, such inspections are conducted to assess the condition of coatings and to detect and quantify the potential loss of material due to corrosion.<sup>481</sup>

Entergy's witnesses testified that in NL-09-106 (July 27, 2009),<sup>482</sup> the Applicant submitted to the NRC its revised BPTIP to modify the program in response to the operating experience and industry initiatives, and that this revised BPTIP increased the number of planned inspections of buried piping and tanks over those initially presented in its LRA.<sup>483</sup> Entergy witnesses also stated that through NL-09-111 (August 6, 2009),<sup>484</sup> Entergy committed “to perform periodic (instead of opportunistic) inspections and to establish the inspection priorities and frequencies based, in part, on the results of the inspections performed before the period of extended operation and other applicable industry and plant-specific operating experience.”<sup>485</sup>

Through these two letters, Entergy expanded the commitment described in LRA § B.1.6 to include, *inter alia*: (1) a risk assessment of in-scope buried piping and tanks that includes consideration of the impacts of buried piping or tank leakage and of conditions affecting the risk for corrosion; (2) classification of pipe segments and tanks as having a high, medium, or low impact of leakage, based on

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<sup>479</sup> Entergy NYS-5 Testimony at 45-46 (Ex. ENTR30373).

<sup>480</sup> *Id.* at 46.

<sup>481</sup> *Id.*

<sup>482</sup> NL-09-106 (Ex. NYS000203).

<sup>483</sup> Entergy NYS-5 Testimony at 61 (Ex. ENTR30373); *see also* NL-09-106, Attach. 1 at 3 (Ex. NYS000203).

<sup>484</sup> NL-09-111, Letter from Fred Dacimo, Vice President, IPEC, to NRC Document Control Desk, Additional Information Regarding License Renewal Application — IPEC RAI 2.3A.3.11-1 and Buried Piping and Tanks Inspection Clarifications (Aug. 6, 2009) (Ex. NYS000171) [hereinafter NL-09-111].

<sup>485</sup> Entergy NYS-5 Testimony at 60 (Ex. ENTR30373); *see also* NL-09-111, Attach. 1 at 1 (Ex. NYS000171).

the safety class, the hazard posed by fluid contained in the piping, and the impact of leakage on reliable plant operation; (3) determination of corrosion risk through consideration of piping or tank material, soil resistivity, drainage, the presence of cathodic protection, and the type of coating; (4) establishment of inspection priority and frequency for periodic inspections of the in-scope piping and tanks based on the results of the risk assessment; and (5) performance of inspections using qualified inspection techniques with demonstrated effectiveness.<sup>486</sup>

Entergy further revised the BPTIP through responses to additional RAIs (i.e., 3.0.3.1.2-2, and 3.0.3.1.2-3),<sup>487</sup> as contained in three NL letters in 2011: NL-11-032 (March 28), NL-11-074 (July 14), and NL-11-090 (July 27).<sup>488</sup>

Entergy witnesses testified that in the March 2011 letter (NL-11-032), Entergy sought to modify its BPTIP in response to RAI 3.0.3.1.2-1

to include additional details on its buried piping inspections, including the number of total inspections planned for each unit before and during the period of extended operation, the number of excavated direct visual inspections of external surfaces, the piping length to be excavated for direct visual inspections, the type of material to be inspected (*i.e.*, carbon or stainless steel), and the piping category to be inspected.<sup>489</sup>

NL-11-032 also stated that Entergy committed that:

[s]oil samples will be taken prior to the period of extended operation and at least once every 10 years thereafter to confirm the initial sample results. According to this commitment, soil samples will be taken at a minimum of two locations at least three feet below the surface near the in-scope piping to obtain representative soil conditions for each system.<sup>490</sup>

According to Entergy's witnesses, the BPTIP, as revised by NL-11-032, is the version that the NRC Staff approved as Entergy's AMP for buried pipes.<sup>491</sup> It is Entergy's position that this BPTIP satisfies Dr. Duquette's (New York's witness) recommendations for an adequate AMP because it:

- (1) adopts NEI [NEI 09-14] and EPRI [EPRI-1016456] recommendations, (2)

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<sup>486</sup> NL-09-106, Attach. 1 at 3, 6 (Ex. NYS000203); NL-09-111, Attach. 1 at 1, & Attach. 2 (Ex. NYS000171).

<sup>487</sup> SER Supp. 1, at 3-5 (Ex. NYS000160).

<sup>488</sup> See Tr. at 3390-91 (Mr. Holston for the NRC Staff); see also NL-11-074 (Ex. NYS000152); NL-11-090, Attach. 2 at 1 (Ex. NYS000153).

<sup>489</sup> Entergy NYS-5 Testimony at 61 (Ex. ENTR30373).

<sup>490</sup> NL-11-032, Attach. 1 at 9 (Ex. NYS000151).

<sup>491</sup> Entergy NYS-5 Testimony at 61 (Ex. ENTR30373) (citing NL-11-032, Attach. 1 at 6, 9 (Ex. NYS000151) and SER Supp. 1, at 3-3 (Ex. NYS000160)).

follows the dictates of NUREG-1801, Rev. 2, Section XI.M41 [GALL-2]; (3) identifies acceptance criteria for inspections of buried pipes; and (4) states the repair and remediation procedures to be followed if the corrosion damage exceeds the acceptance criteria.<sup>492</sup>

During the Staff's review and approval of Entergy's March 2011 BPTIP, Entergy continued to modify its AMP. In response to Staff RAIs 3.0.3.1.2-2 and 3.0.3.1.2-3, Entergy submitted NL-11-074 and NL-11-090 in July 2011, which, among other things, committed to increase the number and frequency of piping inspections, add additional soil testing,<sup>493</sup> and modify its obligation to perform inspections using inspection techniques with demonstrated effectiveness equivalent to "using direct visual inspection."<sup>494</sup> In addition, NL-12-174 (November 29, 2012), which is part of the latest version of the BPTIP, includes: underground components of IP3 service water, IP3 city water, and the IP2 and IP3 fuel oil systems; visual inspections of the piping prior to the PEO and every 2 years thereafter in accordance with GALL-2; and nondestructive testing if there are indications of significant material loss during the inspections.<sup>495</sup>

According to Mr. Holston, the most concise locations to find a description of the components of Entergy's updated BPTIP that comprise its AMP for buried pipes are: (1) the summary presented in the Staff's SSER, and (2) the responses to RAIs, 3.0.3.1.2-1, 3.0.3.1.2-2, and 3.0.3.1.2-3,<sup>496</sup> as presented in Entergy's three 2011 NL letters (NL-11-032, NL-11-074, and NL-11-090).<sup>497</sup> Mr. Holston stated that the original LRA (as modified by the changes IPEC proffered in its 2009 and 2011 responses to RAIs) and the description of the Staff's review represented in the original SER (as amended by the SSER) summarizes the "evaluation of that program as it went from being consistent with AMP XI.M34 to the greatly enhanced AMP it is nowadays."<sup>498</sup>

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<sup>492</sup> *Id.* at 19. See also Nuclear Energy Institute, Guideline for the Management of Underground Piping and Tank Integrity (NEI 09-14) (Dec. 2010) (Ex. NYS000168) [hereinafter NEI 09-14, Rev. 1]; EPRI, Recommendations for an Effective Program to Control the Degradation of Buried Pipe, Report 1016456 (Ex. NYS000167) [hereinafter EPRI-1016456].

<sup>493</sup> NL-11-074, Attach. 1 at 3-4, 4-5, & Attach. 2 at 1 (Ex. NYS000152); NL-11-090, Attach. 1 at 2, 2-3, & Attach. 2 at 1 (Ex. NYS000153).

<sup>494</sup> NL-11-074, Attach. 2 at 1 (Ex. NYS000152).

<sup>495</sup> NL-12-174, Attach. 2 at 3-4 (Ex. ENT000597).

<sup>496</sup> SER Supp. 1 at 3-5 (Ex. NYS000160).

<sup>497</sup> Tr. at 3390-91 (Mr. Holston for the NRC Staff); see also NL-11-032 (Ex. NYS000151); NL-11-074 (Ex. NYS000152); NL-11-090 (Ex. NYS000153).

<sup>498</sup> Tr. at 3392 (Mr. Holston for the NRC Staff).

*b. Other Corporate and Plant-Specific Procedures*

Entergy witness Mr. Cox testified that after the industry's new guidelines were published in 2010,<sup>499</sup> and GALL-2 was issued by the NRC in 2011 to include additional details defining the ten program elements of GALL,<sup>500</sup> Entergy developed numerous corporate-wide<sup>501</sup> and plant-specific<sup>502</sup> procedural documents relating to the management of aging for buried piping and tanks including the 2011 fleet program documents EN-DC-343 (May 16) and CEP-UPT-0100 (October 31), and the plant procedural document SEP-UIP-IPEC (April 29).<sup>503</sup> He went on to testify that these procedures serve to document programs and procedures that implement its updated BPTIP for buried piping and tanks at IPEC as described in section B.1.6 of the LRA.<sup>504</sup>

Entergy witnesses testified that its fleet procedure EN-DC-343 describes the program that governs the development of the Underground Piping and Tanks Inspection and Monitoring Program (UPTIMP) to meet the industry piping initiative presented in "Guideline for the Management of Buried Piping Integrity."<sup>505</sup> The UPTIMP states that it

includes all buried and underground SSCs, including those that are not subject to AMR for license renewal in accordance with 10 C.F.R. Part 54. The BPTIP, in contrast, includes only buried components that are in scope and subject to AMR under Part 54 — a discrete subset of those buried and underground components covered by the UPTIMP.<sup>506</sup>

Entergy witness Mr. Azevedo testified that all the provisions of the corporate fleet procedure, EN-DC-343, are applicable to IPEC.<sup>507</sup> He stated that CEP-UPT-0100 provides the procedures needed to implement the fleet-wide program

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<sup>499</sup> EPRI-1016456 (Ex. NYS000167); NEI 09-14, Rev. 1 (Ex. NYS000168).

<sup>500</sup> GALL-2, at XI.M-1 to -41 (Ex. NYS00147D).

<sup>501</sup> Entergy, EN-EP-S-002-MULTI, Rev. 0, Buried Piping and Tanks General Visual Inspection (Oct. 30, 2009) (Ex. ENT000408) [hereinafter EN-EP-S-002-MULTI, Rev. 0]; Entergy, EN-DC-343, Underground Piping Tanks Inspection and Monitoring Program (May 16, 2011) (Ex. NYS000172) [hereinafter EN-DC-343]; Entergy, Underground Piping and Tanks Inspection and Monitoring, Program Section No. CEP-UPT-0100, Rev. 0 (Oct. 31, 2011) (Ex. NYS000173) [hereinafter CEP-UPT-0100].

<sup>502</sup> Entergy, Underground Components Inspection Plan, Program Section No. SEP-UIP-IPEC, Rev. 0 (Apr. 29, 2011) (Ex. NYS000174) [hereinafter SEP-UIP-IPEC].

<sup>503</sup> Tr. at 3596 (Mr. Cox for Entergy).

<sup>504</sup> Tr. at 3595-97 (Mr. Cox for Entergy).

<sup>505</sup> Entergy NYS-5 Testimony at 56 (Ex. ENTR30373) (citing NEI 09-14, Rev. 1 (Ex. NYS000168)).

<sup>506</sup> *Id.* at 59.

<sup>507</sup> Tr. at 3465 (Mr. Azevedo for Entergy).

described in EN-DC-343.<sup>508</sup> SEP-UIP-IPEC is the Underground Components Inspection Plan specifically developed for IPEC, which, *inter alia*, summarizes the risk ranking process for the plant.<sup>509</sup> It includes a database of all buried piping at the plant, a listing of observed leaks, and the schedule for inspections with a summary of the inspection findings as they are completed.<sup>510</sup> In addition to the three documents, Entergy also issued “Buried Piping and Tanks General Visual Inspection (EN-EP-S-002-MULTI, October 30, 2009),” which specifies the requirements for visual inspections of buried piping.<sup>511</sup> Mr. Azevedo testified that Entergy’s procedures, identified above, are being used to implement the UPTIMP at IPEC and to address the various technical procedures recommended in EPRI-1016456.<sup>512</sup>

Dr. Duquette, testifying for New York, acknowledges that Entergy has submitted additional documents describing its corporate programs and plant-specific procedures,<sup>513</sup> but testified that he still believes “there is nothing in the AMP at all to determine what Entergy is committing to doing except a conceptual framework [which in his opinion] is wholly deficient.”<sup>514</sup> Furthermore, Dr. Duquette noted that while “Entergy has offered more detail in corporate documents, . . . these internal documents are not included in the commitment from Entergy or made a part of the LRA.”<sup>515</sup>

Dr. Duquette criticized what he viewed as a lack of detail in Entergy’s commitment because, in his opinion, “no information is provided concerning what factors Entergy will take into account in performing a risk assessment or to classify its pipes, or how frequently Entergy will inspect pipes according to their priority. Moreover, Entergy makes no commitment to taking any mitigative measures if problems are found.”<sup>516</sup>

In an effort to rebut Dr. Duquette’s testimony, Entergy’s witnesses stated that they used “risk ranking” as an example of one aspect of Entergy’s detailed AMP for buried pipes. Specifically, Entergy’s witness, Mr. Lee, testified that the corporate program, CEP-UPT-0100, provides the methodology for performing the risk ranking, while the plant’s specific procedures in SEP-UIP-IPEC provide

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<sup>508</sup> Entergy NYS-5 Testimony at 58 (Ex. ENTR30373).

<sup>509</sup> *Id.* at 67.

<sup>510</sup> Tr. at 3620-21 (Mr. Azevedo for Entergy).

<sup>511</sup> Entergy NYS-5 Testimony at 56 (Ex. ENTR30373) (referring to EN-EP-S-002-MULTI, Rev. 0 (Ex. ENT000408)).

<sup>512</sup> *Id.* at 57.

<sup>513</sup> New York NYS-5 Testimony at 17 (Ex. NYS000164).

<sup>514</sup> *Id.* at 18.

<sup>515</sup> *Id.* at 19 (referring to EN-DC-343 (Ex. NYS000172), CEP-UPT-0100 (Ex. NYS000173), and SEP-UIP-IPEC (Ex. NYS000174)).

<sup>516</sup> *Id.* at 17 (Ex. NYS000164).

the results of the risk ranking that was performed, and the end result, i.e., the establishment of an inspection priority of either high, medium, or low with its corresponding inspection interval.<sup>517</sup> Mr. Lee pointed to Entergy's corporate document CEP-UPT-0100 as a source of its detailed guidance on the risk ranking of buried piping systems, including inspection priority guidance for radioactive systems, an impact assessment chart to assign risk factors based on the impact of piping leakage, detailed corrosion rating factors, and inspection priority guidance for nonradioactive systems.<sup>518</sup>

In response, Dr. Duquette testified that, while CEP-UPT-0100 presents risk factors, it does not say what you do with those risk factors. According to Dr. Duquette, there is no follow-on relative to the risk factors and, as a result, he still did not know what is going to happen once the risk has been identified.<sup>519</sup>

While Dr. Duquette stated that he did not believe that Entergy had prepared plant- or site-specific procedures for monitoring buried pipes,<sup>520</sup> SEP-UIP-IPEC describes applicable inspection and examination methods for buried pipes and tanks, including in-line pipeline examinations using instrumented vehicles, guided-wave indirect inspections, local pipe direct examination, and direct visual inspections of excavated piping. It also describes the pipeline grouping process based on attributes such as pipe material, coating type, soil/backfill, age, operating parameters, size, process fluid, and cathodic protection.<sup>521</sup> In addition, the appendices to SEP-UIP-IPEC provide additional piping inspection information alleged by Dr. Duquette to be unavailable.<sup>522</sup> This includes, among other things, risk ranking information and a list of pipes in order of inspection priority (Appendix A); an Integrated Inspection Schedule that identifies the specific excavated direct visual inspections to be performed through the third quarter of 2013 (Appendix G); and program drawings of the piping systems and the exact locations of the inspection points (Appendix H).<sup>523</sup>

Dr. Duquette provided no convincing counterpoint to the adequacy of the program details provided by these corporate and plant-specific documents that were generated by Entergy after the industry piping initiative presented in NEI 09-14 was issued in 2010 and GALL-2 was issued in 2011. His alleged deficiencies in the acceptance criteria for inspections and corrective actions are discussed in the following section.

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<sup>517</sup> Tr. at 3457 (Mr. Lee for Entergy).

<sup>518</sup> CEP-UPT-0100, at 21-25 (Ex. NYS000173).

<sup>519</sup> Tr. at 3423 (Dr. Duquette for New York).

<sup>520</sup> Tr. at 3411-12 (Dr. Duquette for Entergy).

<sup>521</sup> Entergy NYS-5 Testimony at 71 (Ex. ENTR30373).

<sup>522</sup> See SEP-UIP-IPEC at 19-69 (Ex. NYS000174).

<sup>523</sup> Entergy NYS-5 Testimony at 71 (Ex. ENTR30373).

*c. Acceptance Criteria for Inspections and Corrective Action*

Mr. Azevedo for Entergy stated that Entergy “has specified appropriate acceptance criteria for inspections of buried piping coatings and buried piping surfaces”<sup>524</sup> in section 5.5 of CEP-UPT-0100<sup>525</sup> and in Entergy’s procedural document EN-EP-S-002-MULTI. These documents record the requirements to perform visual inspections of buried piping, including a checklist of visual indications of corrosion.<sup>526</sup> According to Mr. Ivy,

the acceptance criteria . . . for these procedures is such that if you find any of the listed defects, that's unacceptable . . . If you find any blistering of the coating, any flaking, peeling, delamination, that's considered unacceptable, and you write a condition report that goes into the corrective action system.<sup>527</sup>

Mr. Ivy further testified that these acceptance criteria are based on an industry standard as incorporated into EPRI-1016456.<sup>528</sup>

Mr. Holston of the NRC Staff stated that GALL-2 established two mechanisms to demonstrate the effectiveness of an AMP for buried pipes: direct visual inspections and ultrasonic testing of 25% of the piping. While there are other effective tools for screening piping to rank it according to corrosion susceptibility, he stated that the NRC Staff only recognizes direct inspection and ultrasound testing as the methods that have been demonstrated to be effective.<sup>529</sup> As previously mentioned, in July 2011, Entergy modified its requirement to perform inspections from “using inspection techniques with demonstrated effectiveness”<sup>530</sup> to “using direct visual inspection.”<sup>531</sup>

Mr. Azevedo for Entergy testified that, pursuant to Entergy’s procedures, if any coating damage or degradation is discovered upon pipe inspection, a condition report must be prepared, and the remaining wall thickness measured.<sup>532</sup> He further stated that if less than 87.5% of the nominal wall thickness remains, Entergy must perform a location-specific evaluation that depends upon the loads at that location, and the actual area of the pipe impacted by corrosion.<sup>533</sup> He added that if the measured wall thickness is less than the required wall thickness to carry the

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<sup>524</sup> *Id.* at 84.

<sup>525</sup> Tr. at 3515 (Mr. Azevedo for Entergy).

<sup>526</sup> Tr. at 3514, 3496 (Mr. Ivy for Entergy); EN-EP-S-002-MULTI, Rev. 0 at 4, 11 (Ex. ENT000408).

<sup>527</sup> Tr. at 3497-98 (Mr. Ivy for Entergy).

<sup>528</sup> Tr. at 3498 (Mr. Ivy for Entergy); *see also* EPRI-1016456, App. G (Ex. NYS000167).

<sup>529</sup> Tr. at 3405 (Mr. Holston for the NRC Staff).

<sup>530</sup> NL-11-032, Attach. 2 at 2 (Ex. NYS000151).

<sup>531</sup> NL-11-074, Attach. 2 at 1 (Ex. NYS000152).

<sup>532</sup> Tr. at 3504 (Mr. Azevedo for Entergy).

<sup>533</sup> *Id.*

design loads for that specific pipe, including future corrosion during its remaining life, then that pipe is replaced prior to that component being returned to service.<sup>534</sup> In Mr. Azevedo's opinion, this is an acceptable response and that developing any more detailed acceptance criteria would not be reasonable given the variables that influence pipe performance.<sup>535</sup>

Dr. Duquette for New York criticized Entergy's acceptance criteria in several respects. First, he stated that performing a linear extrapolation of existing wear to predict future corrosion is not accurate because there is no way of determining when the corrosion started. Second, he stated that he has not been informed as to what Entergy plans to do with a condition report once it is prepared. Third, Dr. Duquette testified that he believes that while Entergy has a program to address spot corrosion when encountered, it has not developed corrective actions that identify the problems for the remaining length of a piping system. Fourth, he testified that only a small portion of the total linear footage of piping is being addressed with the proposed number of inspections. And, lastly, he stated that Entergy has not clarified what level of coating damage would need to be present before it is considered unacceptable.<sup>536</sup>

Irrespective of the Applicant's prediction algorithms, Entergy's witness stated that any degradation detected during buried piping inspections is unacceptable and "entered into the IPEC Corrective Action Program and evaluated for extent of condition,"<sup>537</sup> with any repair and replacement of safety-related systems having to be performed in accordance with ASME industry standards.<sup>538</sup> Mr. Azevedo for Entergy testified that, whenever coating damage is detected during an inspection, regardless of whether there is any loss in the pipe wall thickness, the pipe will be recoated before returning it to service.<sup>539</sup> He went on to state that, with regard to looking at other portions of a pipeline system where corrosion is detected, as part of Entergy's corrective action program, the condition report requires Entergy to determine if there are other locations that are susceptible to the same corrosion mechanisms and to investigate these areas before the issue can be closed.<sup>540</sup>

Mr. Holston testified for the Staff that, because all aspects of the licensee's CLB for IP2 and IP3 will remain in effect during the PEO, in the event that renewed licenses are issued, "the provisions of 10 C.F.R. Part 50, Appendix B, Criterion XVI, Corrective Actions, will apply — which require that conditions

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<sup>534</sup> Tr. at 3505 (Mr. Azevedo for Entergy).

<sup>535</sup> Tr. at 3504 (Mr. Azevedo for Entergy).

<sup>536</sup> Tr. at 3506 (Dr. Duquette for New York).

<sup>537</sup> Tr. at 3497-98 (Mr. Ivy for Entergy); Entergy NYS-5 Testimony at 82 (Ex. ENTR30373).

<sup>538</sup> Tr. at 3516 (Mr. Azevedo for Entergy), 3603 (Mr. Ivy for Entergy); *see also* ASME Code, Sec. XI, Art. IWA-2000, "Examination and Inspection" (2001) (Ex. ENT000531).

<sup>539</sup> Tr. at 3509 (Mr. Azevedo for Entergy).

<sup>540</sup> *Id.*

adverse to quality (*e.g.*, coating damage, external corrosion of buried piping) are corrected.”<sup>541</sup>

Mr. Ivy and Mr. Lee, on behalf of Entergy, testified that, in accordance with Entergy’s procedures, if any coating degradation was noted, a Condition Report (CR) would be written and entered into the corrective action process.<sup>542</sup> According to Mr. Azevedo, the CRs are screened by Indian Point management to determine what level of evaluation is required (A through C),<sup>543</sup> which, in turn, dictates the level of investigation that IPEC needs to implement — either an apparent-cause or a more detailed root-cause evaluation.<sup>544</sup> He also stated that with this information, the corrective actions are defined to make sure the condition is bounded and that it does not occur again.<sup>545</sup> He added that once completed, the CR goes back to the management team (for A and B reports) or to the CR department (for C reports) for a review of the response to determine whether it was appropriate and correctly addressed the issue.<sup>546</sup>

Mr. Azevedo for Entergy testified that, as part of the corrective action process, two questions that have to be answered are: (1) where else might an identical problem exist, and (2) what other systems might be affected by the observed corrosion. Further, he stated that these questions would have to be answered not just for the plant where it was initially detected, but for the rest of the Entergy fleet.<sup>547</sup> He stated that if it were concluded that there are other potential locations affected by this corrosion mechanism, then Entergy would have to establish corrective actions to deal with that issue. He asserted that if conditions in one part of the plant impact other systems within the Entergy fleet, the SEP will be updated to reflect the operating experience. Further, Mr. Azevedo stated that, if needed, the procedures will be revised to reflect, among other things what locations get inspected, and how frequently those inspections are conducted.<sup>548</sup>

According to Mr. Ivy, this corrective action process is a fleet-wide procedure required by 10 C.F.R. Part 50, Appendix B, and documented in Entergy’s procedures EN-LI-102.<sup>549</sup> Staff witness Mr. Holston testified that the Staff reviews

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<sup>541</sup> NRC Staff NYS-5 Testimony at 53 (Ex. NRCR20016); *see also* Tr. at 3522 (Mr. Holston for the NRC Staff).

<sup>542</sup> Tr. at 3485 (Mr. Lee for Entergy), 3497-98 (Mr. Ivy for Entergy).

<sup>543</sup> Level A evaluation encompasses very significant issues that might result in a plant shutdown or a violation of a requirement. Tr. at 3552 (Mr. Azevedo for Entergy). Level B evaluation is for items with a lesser albeit still substantial impact. *Id.* Level C evaluation covers impacts that are at an even lower level and only requires that the plant evaluate and correct the conditions. *Id.*

<sup>544</sup> *Id.*

<sup>545</sup> *Id.*

<sup>546</sup> Tr. at 3693 (Mr. Azevedo for Entergy).

<sup>547</sup> Tr. at 3553 (Mr. Azevedo for Entergy).

<sup>548</sup> Tr. at 3691 (Mr. Azevedo for Entergy).

<sup>549</sup> Tr. at 3694 (Mr. Ivy for Entergy).

the Applicant's corrective actions when evaluating each AMP.<sup>550</sup> Thus, in Mr. Holston's opinion, program element 7 of GALL, entitled "corrective actions," is addressed for every program submitted by a license renewal applicant.<sup>551</sup> In addition, according to Mr. Holston, the NRC Staff personnel in the four NRC regional offices periodically conduct "Problem Identification and Resolution" inspections at all nuclear plants that look for gaps in corrective action program performance.<sup>552</sup>

## ***2. Findings Related to the Adequacy of the Applicant's Amended AMP for Buried Pipes***

Section XI.M41 of GALL-2 contains significantly more program details and recommendations than section XI.M34 of GALL-1. Nevertheless, GALL-2, like GALL-1, is only a description of program attributes that an applicant must address in its corporate and plant-specific AMP for buried pipes to demonstrate that the effects of aging will be adequately addressed during the PEO. And as the Commission has stated, a mere *commitment* by an applicant *to prepare a plan falls well short of demonstrating* that aging management of these components will be achieved.<sup>553</sup>

But, with the clarifying documents noted below, we find that the current updated BPTIP provides sufficient detail to allow us to find that it is consistent with GALL-2, and that Entergy has provided reasonable assurance by demonstrating that the effects of aging on buried piping will be adequately managed during the PEO.

More specifically, we find that the AMP, as currently presented in NL-11-032 and as augmented by (1) the Applicant's Commitment 3 presented in the UFSAR Supplement, (2) implementing procedures (i.e., CEP-UPT-0100, EN-DC-343, SEP-UIP-IPEC, EN-EP-S-002-MULTI), and (3) responses to the Staff's RAIs (i.e., NL-11-074 and NL-11-090) provides sufficient detail to determine that the current BPTIP provides reasonable assurance that the effects of aging will be managed adequately during the PEO.

Following the submittal of its LRA, Entergy has: (1) performed a risk assessment of in-scope buried piping and tanks; (2) classified pipe segments and tanks as having a high, medium, or low impact of leakage; (3) determined corrosion risk through consideration of piping or tank material, soil resistivity, drainage, the presence of cathodic protection, and the type of coating; (4) established inspection

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<sup>550</sup>Tr. at 3383 (Mr. Holston for the NRC Staff).

<sup>551</sup>NRC Staff NYS-5 Testimony at 53-54 (Ex. NRCR20016).

<sup>552</sup>*Id.* at 54.

<sup>553</sup>*Vt. Yankee*, CLI-10-17, 72 NRC at 37.

priority and frequency for periodic inspections based on the results of the risk assessment; and (5) performed inspections using qualified inspection techniques with demonstrated effectiveness.<sup>554</sup> We find that these items, combined with the facts testified to by Mr. Holston that (1) the buried pipes at IPEC are coated, and (2) the Applicant has committed to conduct soil sampling and augmenting their inspection program based upon those soil sampling results, give us confidence that Entergy's AMP for buried pipes will provide reasonable assurance that their intended function will be maintained during the PEO.<sup>555</sup>

Industry guidance, as presented in EPRI-1016456, recommends that “[w]here the risk of failure is unacceptable, preventive and mitigative options should be implemented.”<sup>556</sup> Mr. Holston testifying for the Staff stated that the risk of failure means that the system could not perform its intended function during the period of extended operation as, for instance, indicated by repeated findings of degradation in the piping systems.<sup>557</sup> We agree with Mr. Holston. While New York witness Dr. Duquette testified that he believes any leak in a buried pipe is failure, we see nothing in the record supporting New York’s overly conservative position and find the Staff’s opinion is supported by a preponderance of the evidence before us.

Dr. Duquette also criticizes Entergy’s acceptance criteria for, *inter alia*, not providing evidence to explain what Entergy will do with a condition report once it is written, not developing corrective actions that identify the problems for the remaining length of a piping system when spot corrosion is encountered, and not clarifying what level of coating damage would need to be present before it is considered unacceptable.<sup>558</sup>

We disagree with Dr. Duquette’s criticism of Entergy’s acceptance criteria. Under the updated BPTIP to which Entergy has committed, the Board finds that: (1) a CR must be written and entered into the corrective action process for any noted coating degradation, (2) CRs must be screened by IPEC management to determine the level of investigation that IPEC needs to implement to bound the condition, (3) corrective actions must be formulated from this investigation to correct the condition and to assure it does not occur again, (4) any coating damage must be repaired, and (5) at the conclusion of the process, the CR must go back for a management review of the response to determine whether it was appropriate and correctly addresses the issue. Entergy has developed, and committed to, an inspection program to increase the number of inspections if

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<sup>554</sup> NL-09-111, Attach. 1 at 1, Attach. 2 at 2 (Ex. NYS000171).

<sup>555</sup> See Tr. at 3972-73 (Mr. Holston for the NRC Staff).

<sup>556</sup> EPRI-1016456, at 6-1 (Ex. NYS000167).

<sup>557</sup> Tr. at 3975-76 (Mr. Holston for the NRC Staff).

<sup>558</sup> Tr. at 3506 (Dr. Duquette for New York).

corrosion conditions are encountered.<sup>559</sup> Accordingly, based on the preponderance of the evidence before us, we find that this process addresses New York's concerns and demonstrates that Entergy has developed and committed to an acceptable corrective action program.

Finally, in conformity with Part 50, Appendix B, as part of this corrective action process, Entergy must address the question as to where else this problem might exist and what other systems are affected by the observed corrosion — and not just at IPEC, but with all of the Entergy nuclear fleet. If conditions in one part of the plant impact other systems within the fleet, the SEP-UIP-IPEC must be updated to reflect this operating experience. Furthermore, we find that Entergy is committed to implement corrective actions if there are potential locations at IPEC affected by corrosion mechanisms observed at other plants.<sup>560</sup>

As discussed above, the NRC Staff has conducted reviews at IPEC to look for gaps in corrective action program performance, and concluded that there is reasonable assurance that adverse buried piping and tank inspection results will be corrected.<sup>561</sup> We agree with the Staff and find that if the “external surfaces of the piping, coatings, and backfill quality are found to not meet the standards imposed by the plants’ CLB, there is reasonable assurance that they will be restored to meet existing license requirements.”<sup>562</sup>

Based on our review of the Applicant’s current BPTIP (its AMP for buried pipes that includes enhanced commitments) as augmented by recent corporate programs, IPEC procedures, and responses to Staff’s RAIs (covering, *inter alia*, enhanced inspection programs, acceptance criteria, and corrective actions), we find that Entergy’s program provides reasonable assurance that the effects of aging on buried piping will be adequately managed through the PEO.

## H. Need for Cathodic Protection at IPEC<sup>563</sup>

### I. Evidence Related to the Need for Cathodic Protection at IPEC

In addition to its argument that Entergy’s AMP for buried pipes was inadequate because it lacked sufficient detail, New York also argued that regardless of the level of detail supplied, the absence of additional cathodic protection for buried piping at IPEC rendered Entergy’s AMP inadequate. As explained below, we disagree.

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<sup>559</sup> See NL-09-106, Attach. 1 at 3 (Ex. NYS000203).

<sup>560</sup> Tr. at 3691 (Mr. Azevedo for Entergy).

<sup>561</sup> NRC Staff NYS-5 Testimony at 53-54 (Ex. NRCR20016).

<sup>562</sup> *Id.* at 51-52.

<sup>563</sup> Cathodic protection is a technique used to reduce the corrosion of a metal surface by making that surface the cathode of an electrochemical cell.

In his testimony, Dr. Duquette for New York expressed concerns that Entergy has not committed to installing cathodic protection (CP) at Indian Point despite NEI and EPRI documents, as well as Entergy's own corporate guidance documents and consultants' reports, and the NRC Staff's GALL-2, that all stress the importance of cathodic protection.<sup>564</sup>

Attempting to address these concerns, Entergy's witness Mr. Biagiotti testified that the goal for corrosion protection is not to arrest corrosion, but control it to a manageable level of less than 1 mil/year (i.e., 0.001 inch/year).<sup>565</sup> Mr. Holston for the Staff added that the primary defense for this control is provided by the coating applied to the buried pipes at IPEC and that cathodic protection, where needed, is installed to protect a pipe against any breaks (i.e., holidays) that might form in the coating.<sup>566</sup>

Dr. Duquette for New York agreed with these statements, but testified that the main purpose of cathodic protection for pipelines is to protect against pinholes and cracks. Specifically, he stated that he believes that the goal when using CP is not to protect the entire uncoated pipe, but rather, to protect those areas that are not protected by coatings.<sup>567</sup>

The need for cathodic protection at IPEC is discussed in this section. It includes a summary of site characterizations to quantify corrosion potential at the site; a history of leaks, corrective actions, inspections, and cathodic protection at IPEC; and steps incorporated into Entergy's updated AMP to enhance its program to address the lack of site-wide CP.

#### *a. Corrosion Potential at IPEC*

Corrosion is an electrochemical process by which steel and other metals attempt to return to their natural ore condition. In this process, the metal is corroded by discharges of metallic ions to earth.<sup>568</sup> As Entergy witness Mr. Biagiotti explained during the hearing, corrosion needs four conditions to occur: (1) an anode as a source of electrons, e.g., pipe where the metal wastage occurs; (2) a cathode as the consumer of the metal electrons, e.g., other sites on a bare metal pipe or

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<sup>564</sup> New York NYS-5 Testimony at 18-22 (Ex. NYS000164). According to Dr. Duquette, issues regarding the level of detail in Entergy's AMP, risk ranking of the piping, and the number and frequency of inspections all lead him to conclude that cathodic protection needs to be implemented on a plant-wide basis at the IPEC site. *Id.* at 22.

<sup>565</sup> Tr. at 3877 (Mr. Biagiotti for Entergy).

<sup>566</sup> Tr. at 3858-59 (Mr. Holston for the NRC Staff).

<sup>567</sup> Tr. at 3884-85 (Dr. Duquette for New York).

<sup>568</sup> PCA Engineering, Inc., "Corrosion/Cathodic Protection Field Survey and Assessment of Underground Structures at Indian Point Energy Center Unit Nos. 2 and 3 during October 2008" (Nov. 10, 2008; revised Dec. 2, 2008) at 5 (Ex. NYS000178) [hereinafter PCA Report].

a dissimilar metal from the anode; (3) a metallic path between the anode and cathode; and (4) an electrolyte, often water with oxygen to aid the electrochemical reaction at the cathode site.<sup>569</sup> According to Mr. Biagiotti, corrosion terminates if any one of these four characteristics is removed.<sup>570</sup>

Entergy witness Mr. Biagiotti testified that IPEC consists of a congested underground environment that includes multiple piping systems in the presence of an extensive grounding network of bare copper wire.<sup>571</sup> He stated that these are conditions conducive to corrosion from dissimilar metals that are detrimental to the ferrous piping materials in the presence of copper.<sup>572</sup> Mr. Biagiotti stated that Entergy attempts to control corrosion at IPEC through the use of coatings to break the current path.<sup>573</sup> He added that while coated, any breaks or holidays in the pipe coating provide an opportunity for corrosion and can lead to accelerated rates of corrosion in steel and ferrous materials, particularly if soil resistivity is low, i.e., indicating a high-corrosivity soil.<sup>574</sup>

According to Entergy's witnesses, two commonly used methods for assessing soil corrosivity of buried pipes are: (1) testing for resistivity using direct soil tests and indirect resistivity surveys, and (2) performing an analysis to estimate corrosivity in accordance with the American Water Works Association C105 (AWWA C105) assessment process.<sup>575</sup> Regarding the former, “[b]ased on soil resistivity alone, a resistivity >20,000 ohm-cm is considered non-corrosive.”<sup>576</sup> Concerning the latter, according to exhibits received in evidence, “AWWA C105 soil corrosivity assessment utilizes a point system, using five soil parameters: soil resistivity, pH, redox potential, sulfides, and moisture (drainage).”<sup>577</sup> Accordingly, soils scoring more than ten points are considered corrosive.”<sup>578</sup> These witnesses stated that Entergy uses both of these analyses to determine soil corrosivity.<sup>579</sup>

According to Mr. Biagiotti for Entergy, the most efficient approach to detect corrosion potential is to directly test the soil for its propensity to resist current

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<sup>569</sup>Tr. at 3771 (Mr. Biagiotti for Entergy).

<sup>570</sup>Tr. at 3772 (Mr. Biagiotti for Entergy).

<sup>571</sup>Tr. at 3749 (Mr. Biagiotti for Entergy).

<sup>572</sup>Report of Dr. David J. Duquette, Ph.D. in Support of Contention NYS-5 (Dec. 16, 2011) at 21 (Ex. NYS000165) [hereinafter Duquette Report].

<sup>573</sup>Tr. at 3772 (Mr. Biagiotti for Entergy).

<sup>574</sup>See PCA Report at 6 (Ex. NYS000178).

<sup>575</sup>Entergy NYS-5 Testimony at 39-40 (Ex. ENTR30373); see also S.F. Biagiotti, Jr., et al., *Using Soil Analysis and Corrosion Rate Modeling to Support ECDA and Integrity Management of Pipelines and Buried Plant Piping*, NACE Corrosion/2010, Paper 10059 (Mar. 2010) (Ex. ENT000389).

<sup>576</sup>NL-11-032, Attach. 1 at 9 (Ex. NYS000151).

<sup>577</sup>*Id.*

<sup>578</sup>*Id.*

<sup>579</sup>*Id.*; Entergy NYS-5 Testimony at 61, 98-105, 116-17 (Ex. ENTR30373).

flow, which is an indication of the lack of anode/cathode units present in an area.<sup>580</sup> These soil resistivity measurements indicate the relative ability of the earth to restrict the flow of electrical currents; i.e., lower resistivity soils are generally considered to be more corrosive than soils of higher resistivity.<sup>581</sup> NACE reference documents relied on by Entergy state that soil resistivity of up to 1000 ohm-cm is generally considered to be corrosive to very corrosive, between 1000 to 2000 ohm-cm moderately corrosive, between 2000 to 10,000 ohm-cm mildly corrosive, and above 10,000 ohm-cm is considered negligibly corrosive.<sup>582</sup>

As testified to by Mr. Biagiotti, two other techniques used to measure soil resistivity at a site include the close interval survey (CIS) technique that measures potential, i.e., voltage that's moving around the pipe, and direct current voltage gradient (DCVG) that is designed to look where the current pickup and discharge points are to reveal information about the location of holidays in the pipe coating.<sup>583</sup> As testified to by Mr. Biagiotti, these are well-established techniques that are referenced in the American Petroleum Institute (API) and EPRI documents.<sup>584</sup>

*b. Soil Corrosivity at IPEC*

Entergy's UFSAR states that an initial corrosivity survey and soil tests were performed for plant construction of IP2 and IP3 to assess the need for cathodic protection for these units.<sup>585</sup> Electrical resistivity measurements and a visual inspection of the area away from the river (where the turbine generator building, reactor building, primary auxiliary building, and associated facilities for IP2 and IP3 are located), indicated that the environment is mostly rock with areas of dry sandy clay.<sup>586</sup> On this basis, Entergy determined that cathodic protection was not required on underground facilities in these areas.<sup>587</sup>

In October 2008, PCA Engineering, Inc. (PCA) performed a corrosion/cathodic protection field survey and assessment of the underground structures (both within and outside the scope of the license renewal rule) at IP2 and IP3 using field survey

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<sup>580</sup>Tr. at 3773 (Mr. Biagiotti for Entergy).

<sup>581</sup>PCA Report at 7 (Ex. NYS000178).

<sup>582</sup>Entergy NYS-5 Testimony at 115 (Ex. ENTR30373) (citing A.W. Peabody, Peabody's Control of Pipeline Corrosion 8 (Ronald L. Bianchetti, 2d ed. 2001) (Ex. ENT000390)).

<sup>583</sup>Tr. at 3775-76 (Mr. Biagiotti for Entergy).

<sup>584</sup>Tr. at 3776 (Mr. Biagiotti for Entergy) (referencing API 570, Piping Inspection Code: In-Service Inspection, Rating, Repair, Alteration of Piping Systems, American Petroleum Institute (2d ed. Oct. 1998) (Ex. ENT000447) and EPRI-1016456 (Ex. NYS000167).

<sup>585</sup>UFSAR, Rev. 20, Indian Point Unit 3, Excerpted: Chapter 8 — Electrical Systems (2007) at 59 (Ex. NYSR0013K) [hereinafter IP3 UFSAR, Rev. 20]; *see also* UFSAR, Rev. 20, Indian Point Unit 2 (2007) at 38 (Ex. NYSR0014D) [hereinafter IP2 UFSAR, Rev. 20].

<sup>586</sup>IP3 UFSAR, Rev. 20 at 59 (Ex. NYSR0013K); IP2 UFSAR, Rev. 20 at 38 (Ex. NYSR0014D).

<sup>587</sup>IP3 UFSAR, Rev. 20 at 59 (Ex. NYSR0013K); IP2 UFSAR, Rev. 20 at 38 (Ex. NYSR0014D).

procedures consisting of soil resistivity measurements, as well as structure-to-soil potential measurements, electrical isolation testing, and temporary impressed current testing.<sup>588</sup> PCA characterized the site<sup>589</sup> and recorded soil resistivity data for the areas above the buried piping running between the IP2 condensate storage tank (CST) and the auxiliary feedwater (AFW) pump building, and the IP2 city water storage tank to the IP2 pipe tunnel.<sup>590</sup> Soil resistivities that were measured at depths of 5, 10, and 15 feet below ground surface ranged from 8,043 ohm-cm to 63,195 ohm-cm with an average value of 28,589 ohm-cm and all values but one were higher than 10,000 ohm-cm.<sup>591</sup>

As a result of their survey, PCA made three recommendations: (1) install corrective measures to eliminate/minimize stray current to the city water piping at the location that it crosses the Algonquin gas pipeline, (2) provide a progressive evaluation of cathodic protection needs for high priority piping services on a zone basis, and (3) implement an inspection program using industry standard API-570 to identify high priority zones.<sup>592</sup> In addressing these recommendations, Mr. Azevedo testified that Entergy provided cathodic protection for the stray currents around the city water line where it crosses the Algonquin gas pipeline and have progressively evaluated the need for additional cathodic protection using, *inter alia*, the results of the Area Potential Earth Current (APEC) survey described below that resulted in: (1) the installation of a CP system on the IP2 and IP3 CST lines, (2) placement of sacrificial anodes on the IP3 sewage line, and (3) development of plans to install cathodic protection on IP2 service water lines in 2013.<sup>593</sup>

Dr. Duquette testified for New York that “[i]mplementing the recommendations of the PCA report would have brought IPEC into reasonable agreement with [GALL-2] for buried and underground pipes.”<sup>594</sup> While Dr. Duquette testified that he agreed that cathodic protection has been provided to address the stray current around the city water piping and that Entergy has implemented an inspection program, he testified that he has not seen any progressive evaluation of cathodic

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<sup>588</sup> PCA Report at 1 (Ex. NYS000178).

<sup>589</sup> Tr. at 3788 (Mr. Biagiotti for Entergy).

<sup>590</sup> Entergy NYS-5 Testimony at 114 (Ex. ENTR30373) (citing PCA Report at 14 & tbls. I-IV (Ex. NYS000178)).

<sup>591</sup> *Id.*

<sup>592</sup> PCA Report at 16-18 (Ex. NYS000178).

<sup>593</sup> Tr. at 3846-48 (Mr. Azevedo for Entergy). Sections IV.H.1.d, beginning at page 349, and IV.H.1.f, beginning at page 354, of this decision detail the installation of CP systems and the proposed pipeline inspection and soil testing program.

<sup>594</sup> Duquette Report at 21 (Ex. NYS000165).

protection for all the piping within the scope of license renewal — a deficiency he views as problematic.<sup>595</sup>

Mr. Azevedo asserted that Entergy has implemented the third recommendation by inspecting a variety of pipes in many locations.<sup>596</sup> In addition, he stated that the program has been augmented with a system engineer (i.e., the cathodic protection engineer<sup>597</sup>) who performs an annual inspection of the cathodic protection system, and monitors rectifier outputs.<sup>598</sup>

In response to a leak observed in February 2009,<sup>599</sup> Entergy's witnesses testified the Applicant contracted in September 2009 with Structural Integrity Associates (SIA) to perform indirect guided wave ultrasonic testing (GWT) on the IP2 CST and condensate return line piping.<sup>600</sup> The testing results indicated that the 8-inch condensate return line and 12-inch CST supply lines might have moderate corrosion on the outside pipe surface at lower plant elevations to the west of the site near the river where the moisture content of the soil is greater than on the higher ground to the east.<sup>601</sup> Entergy witnesses testified that “[o]n that basis, cathodic protection was installed to protect this piping at the lower plant elevations.”<sup>602</sup>

In 2010, Entergy commissioned SIA to conduct the aforementioned site-wide APEC survey within the protected area at IPEC.<sup>603</sup> APEC is an indirect survey technique that investigates a broad area to help focus attention toward areas of higher potential for corrosion activity.<sup>604</sup> As Mr. Biagiotti testified, this technique is used to avoid random excavations by providing data to concentrate on the most likely locations for potential corrosion problems.<sup>605</sup> SIA completed the APEC survey in November 2010 with the final technical report issued in September 2011.<sup>606</sup>

Entergy records reflect that a total of 335 locations were tested throughout the protected area of the plant, and that data acquisition and analysis included the

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<sup>595</sup> Tr. at 3952-54 (Dr. Duquette for New York).

<sup>596</sup> Tr. at 3716 (Mr. Azevedo for Entergy).

<sup>597</sup> Tr. at 3963 (Mr. Azevedo for Entergy).

<sup>598</sup> Tr. at 3954-55 (Mr. Azevedo for Entergy).

<sup>599</sup> See *infra* Section IV.H.1.c beginning at page 344.

<sup>600</sup> Entergy NYS-5 Testimony at 94 (Ex. ENTR30373).

<sup>601</sup> *Id.*

<sup>602</sup> *Id.* at 91-92. Sections IV.H.1.d, beginning at page 349, and IV.H.1.f, beginning at page 354, of this decision detail the installation of CP systems and the proposed pipeline inspection and soil testing program.

<sup>603</sup> Entergy NYS-5 Testimony at 100 (Ex. ENTR30373).

<sup>604</sup> See generally *id.*

<sup>605</sup> Tr. at 3790 (Mr. Biagiotti for Entergy).

<sup>606</sup> Entergy NYS-5 Testimony at 100 (Ex. ENTR30373).

integration of 341,700 measurements.<sup>607</sup> According to Mr. Biagiotti, this survey covered more than 54% of the license renewal piping, 79% of the 24-inch service water lines, and 89% of the service water system that has the potential to contain radiological fluid.<sup>608</sup>

Several APEC indications display trends associated with coating degradation.<sup>609</sup> While an existing CP system at IPEC was designed to provide protective current to the docks and discharge canal,<sup>610</sup> the APEC survey demonstrated that the existing CP systems are also influencing some portions of the buried piping located in the western bench adjacent to the Hudson River.<sup>611</sup> But, because only 16% of the inspected areas are receiving adequate CP to ensure corrosion control,<sup>612</sup> SIA opined that it is still necessary to add supplemental current to improve the distribution and polarization levels to cathodically protect the remaining buried piping in the area.<sup>613</sup>

Based on its APEC survey, SIA recommended that the extent of the coating degradation be assessed through direct pipe examinations, and that the plant augment its CP system to provide complete site coverage.<sup>614</sup> Accepting this recommendation, and in order to validate and calibrate the APEC interpretations, Entergy selected four plant locations with the most adverse indications of potential variability and directional current change based on the APEC survey for excavation and inspection.<sup>615</sup> In order of priority, the areas designated by APEC and selected by Entergy for inspection were: (1) IP2 Transformer Yard, (2) IP3 Transformer Yard, (3) West of IP3 Heater Bay, and (4) South of Cafeteria.<sup>616</sup>

It was SIA's expressed opinion that: “[t]he design, installation and use of additional cathodic protection systems for the buried piping is in the best interest of plant reliability and that “[t]he installation of a fully functional CP system will minimize the threat of continued external corrosion on the buried piping and tanks.”<sup>617</sup> In contrast, Mr. Biagiotti, Senior Associate for SIA and Entergy witness, testified that, in his opinion, none of the testing results rose to the level of a severe indication that would prompt immediate corrective measure.<sup>618</sup> As he

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<sup>607</sup> 2010 APEC Survey at 1-1 (Ex. ENT000445).

<sup>608</sup> Tr. at 3782-83 (Mr. Biagiotti for Entergy).

<sup>609</sup> 2010 APEC Survey at 1-1 (Ex. ENT000445).

<sup>610</sup> *Id.*

<sup>611</sup> *Id.* at 3-8.

<sup>612</sup> *Id.* at 1-1; *see also id.* at 3-11, fig. 3-8.

<sup>613</sup> *Id.* at 4-1.

<sup>614</sup> *Id.* at 1-1 to -2, 4-1.

<sup>615</sup> Entergy NYS-5 Testimony at 103 (Ex. ENTR30373).

<sup>616</sup> *Id.* (citing 2010 APEC Survey at 1-1 (Ex. ENT000445)).

<sup>617</sup> 2010 APEC Survey at 1-2.

<sup>618</sup> Tr. at 3789 (Mr. Biagiotti for Entergy).

stated, this is a process and the next step following the APEC survey is to do the strategic, prioritized direct examinations of the piping at the highlighted areas to quantify what the APEC survey results signify.<sup>619</sup>

Dr. Duquette, testifying for New York, responded that he agrees with Entergy that this survey is a good technique for prioritizing where to look for potential corrosion by providing some information that helps locate potentially critical areas.<sup>620</sup> But he was nevertheless surprised that the current levels are as high as they are, because, in his opinion, if the coatings were sound, there would be no current at all.<sup>621</sup> Dr. Duquette also indicated that his conceptual model of the piping conditions at IPEC is not one of large areas of bonding problems or large holidays in the coating.<sup>622</sup> Rather, according to Dr. Duquette, “if there’s going to be any kind of a problem with these kinds of coatings, it’s going to be at pinholes or at small cracks in the coating, because of the coating aging,”<sup>623</sup> and the widespread presence of elevated current levels in the survey results indicates that “there’s a lot of activity, a lot more than I would have expected.”<sup>624</sup>

Mr. Biagiotti responded that, while that was a valid observation, what needs consideration is the fact that there are many buried items at IPEC providing conduits for current flow.<sup>625</sup> That is why, in his opinion, the next appropriate step is to perform direct visual examinations for the areas with the largest current flows in order to compare the results to observed conditions.<sup>626</sup> As discussed in more detail in the next section, Entergy has already completed the inspections for the first two locations identified during the APEC survey (i.e., IP2 and IP3 transformer yards, with no coating degradation detected at one location and some coating degradation with only minor surface corrosion detected in the other).<sup>627</sup> In addition, Entergy was excavating at the third location in 2013, and planned to investigate the fourth location at a future date.<sup>628</sup>

We received testimony that additional soil testing was performed after the APEC survey. Specifically, Mr. Lee for Entergy stated that in late 2011, Entergy took grab soil samples at the anode locations associated with the installation of cathodic protection for the IP2 and IP3 CST lines and during the excavation of

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<sup>619</sup> *Id.*

<sup>620</sup> Tr. at 3819, 3821 (Dr. Duquette for New York).

<sup>621</sup> Tr. at 3791-92 (Dr. Duquette for New York).

<sup>622</sup> See Tr. at 3792 (Dr. Duquette for New York).

<sup>623</sup> *Id.*

<sup>624</sup> Tr. at 3792-93 (Dr. Duquette for New York).

<sup>625</sup> Tr. at 3793 (Dr. Duquette for New York).

<sup>626</sup> Tr. at 3793-95 (Dr. Duquette for New York).

<sup>627</sup> Tr. at 3799 (Mr. Azevedo and Mr. Lee for Entergy).

<sup>628</sup> *Id.* (Mr. Azevedo for Entergy).

24-inch service water lines for the IP2 service water.<sup>629</sup> According to these test results, all of the samples had resistivities exceeding 10,000 ohm-cm, indicating negligible corrosive potential.<sup>630</sup>

Based on historic soil testing and resistivity surveys, Entergy witnesses opined that “available data do not indicate that soil surrounding in-scope buried piping at IPEC is corrosive,”<sup>631</sup> while Dr. Duquette for New York claimed that “Entergy’s own studies show that the soils at Indian Point are mildly to moderately corrosive.”<sup>632</sup> Dr. Duquette testified that “[c]orrosive is corrosive; soil conditions either are or are not corrosive. To say that moderately corrosive soil is not corrosive is inaccurate and misleading.”<sup>633</sup> While he has no dispute with the soil measurements that have been made, he is concerned that the soil in immediate contact with the pipe has not been characterized, pointing out that the soil was corrosive enough to have caused some leaks at the site.<sup>634</sup> Along these lines, Dr. Duquette testified that he considered even mildly corrosive soil to be problematic given the length of exposure time.<sup>635</sup> Dr. Duquette concluded that he does not think very aggressive soil is necessary to have active corrosion given the very long time for corrosion to develop to where corrosion can become serious enough to be of concern.<sup>636</sup> While Entergy witness Mr. Cox testified that he believes the site conditions are not conducive to widespread corrosion, the Applicant has, nevertheless, instituted the AMP for buried pipes to address possible corrosion.<sup>637</sup>

#### *c. Historic Leaks, Corrective Actions, Inspections at IPEC*

GALL-2 discusses six examples of industry-wide leaks detected in buried pipes.<sup>638</sup> Because this industry’s operating experience shows that buried pipes are subject to corrosion, GALL-2 states that it is necessary for a license renewal applicant to evaluate both plant-specific and nuclear industry operating experience and to modify its aging management program for buried pipes accordingly.<sup>639</sup>

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<sup>629</sup>Tr. at 3811 (Mr. Lee for Entergy).

<sup>630</sup>GZA/Theielsch Engineering Soil Resistivity Data for IP2 & IP3 AFW Bldg., IP2 SW Line 408 (June 2012) at 2 (Ex. ENT000582).

<sup>631</sup>Entergy NYS-5 Testimony at 61 (Ex. ENTR30373).

<sup>632</sup>New York NYS-5 Testimony at 22 (Ex. NYS000164); New York NYS-5 Rebuttal Testimony at 15 (Ex. NYSR20399).

<sup>633</sup>New York NYS-5 Rebuttal Testimony at 15-16 (Ex. NYSR20399).

<sup>634</sup>Tr. at 3814-15 (Dr. Duquette for New York).

<sup>635</sup>Tr. at 3826-27 (Dr. Duquette for New York).

<sup>636</sup>Tr. at 3827 (Dr. Duquette for New York).

<sup>637</sup>See Tr. at 3830 (Mr. Cox for Entergy).

<sup>638</sup>GALL-2 at XI.M41-13 (Ex. NYS00147D).

<sup>639</sup>*Id.*; see also Entergy NYS-5 Testimony at 88-89 (Ex. ENTR30373).

In this vein, regarding historic leaks, the NRC Staff testified that:

[t]he Staff's review of the plant-specific operating experience at Indian Point as it pertains to in-scope buried pipes and tanks revealed the following:

- In 2007, a buried auxiliary steam line leaked . . . ;
- In 2008, three ten foot segments of IP2 condensate storage tank piping were excavated and the piping was inspected. There were two areas which required coating repairs and two areas where there were minor coating defects . . . ;
- In 2009, an IP2 8-in. condensate storage tank return line developed a leak of under 15 gallons per minute . . .<sup>640</sup>

The 2007 and 2009 leaks were discussed in Entergy's July 27, 2009, response to the Staff's RAIs.<sup>641</sup> The 2007 leak, detected by Entergy in a buried 8-inch auxiliary steam line, which is not within the scope of license renewal, was attributed "to the use of inappropriate insulation material for buried steam piping that allowed moisture intrusion resulting in corrosion of the piping causing the subsequent leak. The affected piping was replaced and reinsulated with a suitable material."<sup>642</sup>

Relative to the 2009 leak, on February 19 of that year, IPEC personnel observed water in a pipe sleeve in the floor of the AFW pump building.<sup>643</sup> After excavating a portion of the IP2 8-inch diameter CST return line in the area of the observed leakage, Entergy identified a hole in the pipe where a small area of protective coating was missing and detected two other areas of thinned piping.<sup>644</sup> This pipe was one of the lines inspected in 2008, albeit at different locations.<sup>645</sup> Entergy replaced a section of the pipe containing the leak, performed weld repairs on the nearby areas exhibiting shallow corrosion, and recoated the affected piping sections in accordance with Entergy procedures.<sup>646</sup>

Two other leaks were detected in mid-2012. According to Entergy witness Mr. Lee, during an opportunistic inspection, a leak was identified in a 1-inch city water line that provides makeup water to a tank in a noncode portion of the system.<sup>647</sup> A second leak was detected in an axial crack that had developed

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<sup>640</sup> NRC Staff NYS-5 Testimony at 32-33 (Ex. NRCCR20016).

<sup>641</sup> NL-09-106, Attach. 1 at 2 (Ex. NYS000203).

<sup>642</sup> *Id.* at 3.

<sup>643</sup> Entergy NYS-5 Testimony at 91 (Ex. ENTR30373).

<sup>644</sup> *Id.*

<sup>645</sup> Entergy, Root Cause Analysis Report, CST Underground Recirc. Line Leak, CR-IP2-2009-00666, Rev. 0 (May 14, 2009) at 17 (Ex. NYS000179).

<sup>646</sup> *Id.* at 3-6.

<sup>647</sup> Tr. at 3932 (Mr. Lee for Entergy).

in a sanitary sewer line.<sup>648</sup> Neither of these leaks was associated with in-scope piping.<sup>649</sup>

With regard to pipe inspections, Mr. Lee testified that the first direct visual inspections of buried piping began in 2008 when Entergy inspected portions of the pipes from the IP2 CST to the AFW pump building.<sup>650</sup> Entergy selected these specific lines for inspection based on an assessment of the piping's safety significance, the potential radiological and operational impacts of piping failure, and the piping's corrosion risk.<sup>651</sup> The soil was excavated from around these pipes at two locations, exposing the roughly parallel lines that ran between these structures.<sup>652</sup> One location was in the horizontal run of the pipe near the base of the CST, and the other location was at the approximate "one-third point" along the sloped length of the piping, approximately 100 feet down the hill.<sup>653</sup> Inspections identified five small areas that required coating repairs.<sup>654</sup> Entergy corrected these conditions by cleaning up the affected area and removing the upper layers down to sound coating.<sup>655</sup>

According to Entergy's witnesses, the Applicant attributed the pipe defects to the introduction of rocks in the backfill material used when covering the piping during initial construction, and also hypothesized that the coating damage possibly occurred during the excavation process.<sup>656</sup> Entergy also performed ultrasonic testing (UT) thickness measurements on those areas where the base metal was exposed.<sup>657</sup> These inspections confirmed that the pipe thickness remained at its nominal thickness and found no evidence of measurable wall loss due to corrosion.<sup>658</sup> Entergy witness Mr. Lee testified that the Applicant concluded, even with the degraded coating, the soil was not corrosive enough to cause significant metal loss.<sup>659</sup>

The next inspection occurred in February 2009 during the investigation and repairs to the observed leak in the IP2 CST return line that was described above.<sup>660</sup> As part of its root-cause evaluation, Entergy recorded that the damage to the

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<sup>648</sup> Tr. at 3932-33 (Mr. Lee for Entergy).

<sup>649</sup> Tr. at 3942 (Mr. Lee for Entergy).

<sup>650</sup> Tr. at 3607 (Mr. Lee for Entergy).

<sup>651</sup> *Id.*

<sup>652</sup> *Id.*

<sup>653</sup> Entergy NYS-5 Testimony at 90 (Ex. ENTR30373).

<sup>654</sup> *Id.*

<sup>655</sup> Tr. at 3607 (Mr. Lee for Entergy); Entergy NYS-5 Testimony at 88 (Ex. ENTR30373).

<sup>656</sup> Entergy NYS-5 Testimony at 91 (Ex. ENTR30373).

<sup>657</sup> *Id.* at 90.

<sup>658</sup> *Id.*

<sup>659</sup> Tr. at 3608 (Mr. Lee for Entergy).

<sup>660</sup> Entergy NYS-5 Testimony at 88 (Ex. ENTR30373).

external protective pipe coating was due to the presence of large rocks in the backfill at the time of original construction — the same conclusion that was reached with the degraded coatings observed during the 2008 inspections.<sup>661</sup> In the report of that evaluation, Entergy posits that high moisture in the soil surrounding the pipe, likely caused by the close proximity of the pipe depth to the water table, contributed to the observed corrosion.<sup>662</sup> Based on an evaluation of the findings from this event, according to Entergy witnesses, the Applicant undertook numerous corrective actions, including the use of improved backfill specifications for pipe cover.<sup>663</sup>

The NRC Staff witnesses testified that, even though the 2009 inspection revealed that the condensate return line developed a leak, the line did not experience a through-wall failure and that “subsequent evaluations determined that its current licensing basis function could be met despite the leak; [and] therefore . . . the term ‘failure’ is not appropriate.”<sup>664</sup> Entergy witness Mr. Lee testified that the lesson learned by Entergy from the 2008 and 2009 inspections of the IP2 CST lines is that selection of pipe sections must focus on those areas most susceptible to corrosion, in that situation at the lower plant elevations where pipelines are likely closer to the water table.<sup>665</sup>

In regard to further inspections, the record shows that: subsequent inspections were performed in 2009 and 2011 on the city water lines,<sup>666</sup> fire protection system,<sup>667</sup> the IP2 service water piping,<sup>668</sup> and two IP3 lines from the CST to the

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<sup>661</sup> Entergy, Root Cause Analysis Report, CST Underground Recirc. Line Leak, CR-IP2-2009-00666, Rev. 0 (May 14, 2009) at 19 (Ex. NYS000179).

<sup>662</sup> *Id.*

<sup>663</sup> *Id.* at 34-35; Tr. at 3614 (Mr. Azevedo for Entergy). Mr. Azevedo testified that the original backfill specification did not have a lot of controls on the size of rocks, while the current specification limits the maximum particle size to approximately 2 to 2-1/2 inches. Tr. at 3614 (Mr. Azevedo for Entergy).

<sup>664</sup> NRC Staff NYS-5 Testimony at 68 (Ex. NRCR20016).

<sup>665</sup> Tr. at 3609 (Mr. Lee for Entergy).

<sup>666</sup> See General Visual Inspection Report for 10-Inch City Water Line from Catskill Water Supply (Oct. 2009) (Ex. ENT000434); General Visual Inspection Report for 16-Inch City Water Line from CWST (Oct. 2009) (Ex. ENT000435).

<sup>667</sup> See General Visual Inspection Report for 10-Inch City Water/Fire Water Line at Maintenance Training Facility (MTF) (Nov. 2009) (Ex. ENT000436); *see also* General Visual Inspection Report for IP3 8-Inch Fire Protection Line (N/S) at N/W corner of the WHUT Pit (Aug. 2011) (Ex. ENT000437); General Visual Inspection Report for IP3 6-Inch Fire Protection Line (N/S) corner of the WHUT Pit (Aug. 2011) (Ex. ENT000438).

<sup>668</sup> See UT Erosion/Corrosion Examination Report No. IP2-UT-12-002 (Service Water 24-Inch Line 409) (Jan. 2012) (Ex. ENT000442); Condition Report CR-IP2-2011-06248 (Dec. 8, 2011) (Ex. ENT000443); Condition Report CR-IP2-2011-06250 (Dec. 8, 2011) (Ex. ENT000444); *see also* General Visual Inspection Report for IP2 Service Water 24-Inch Line 408 (WO # 279576-02) (Nov.

(Continued)

AFW piping.<sup>669</sup> City water lines were inspected in 2009, while fire protection lines and service water piping were inspected in 2011. Specifically, “[i]n August 2011, Entergy performed opportunistic inspections of sections of IP3 8-inch and 6-inch fire protection lines running north-south under the dry cask travel pad.”<sup>670</sup> In November and December 2011, IPEC performed direct visual inspections of sections of the IP2 service water piping (24-inch lines 408 and 409),<sup>671</sup> and on the IP3 pipelines running from the CST to the AFW building.<sup>672</sup>

Entergy records indicate that visual inspections have not identified coating failures, and that each inspection found the condition of the coating and piping to be acceptable in accordance with the criteria contained in EN-EP-S-002-MULTI.<sup>673</sup> Other than the soil encountered in 2009 around the area of the leak in CST lines, Entergy witnesses have testified that visual observation of the backfill has not identified rocks or foreign material that could damage external coatings.<sup>674</sup> In addition to those inspection results, Entergy documents reflect that the data, acquired from future excavations and direct inspections, will be assessed to determine the need for additional inspections or for adjusted inspection frequencies.<sup>675</sup>

On behalf of New York, Dr. Duquette stated that the 2009 leak in the CST return line “provides a cautionary tale about the condition of all of the buried piping at Indian Point,” and that IPEC’s proposed inspection program would not have been sufficient to have identified the possibility of a leak in this buried pipe.<sup>676</sup> Entergy’s witnesses, however, testified that the use of the inspection data to assess the potential need for cathodic protection for the 2009 leak is consistent

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2011) (Ex. ENT000439); General Visual Inspection Report for IP2 Service Water 24-Inch Line 409 (WO # 279576-02) (Nov. 2011) (Ex. ENT000440); UT Erosion/Corrosion Examination Report No. IP2-UT-11-048 (Service Water 24-Inch Line 408) (Dec. 2011) (Ex. ENT000441); UT Erosion/Corrosion Examination Report No. IP2-UT-11-050 (Service Water 24-Inch Line 409) (Dec. 2011) (Ex. ENT000448).

<sup>669</sup> See General Visual Inspection Report for IP3 AFW/Cond Return Line to CST (8-Inch Line 1080) (Ref. WO # 279578-03) (Dec. 2011) (Ex. ENT000430); General Visual Inspection Report IP3 CST Supply to AFW Pumps (12-Inch Line 1070) (Ref. WO # 279578-03) (Dec. 2011) (Ex. ENT000431). See also UT Erosion/Corrosion Examination Report No. IP3-UT-11-076 (8-Inch Line # 1080, CST Return Line) (Dec. 2011) (Ex. ENT000432); UT Erosion/Corrosion Examination Report No. IP3-UT-11-077 (12-Inch Line # 1070, CST Supply to the AFW Pump Section) (Dec. 2011) (Ex. ENT000433).

<sup>670</sup> Entergy NYS-5 Testimony at 98 (Ex. ENTR30373).

<sup>671</sup> Id. at 99.

<sup>672</sup> Id. at 96.

<sup>673</sup> EN-EP-S-002-MULTI, Rev. 0 (Ex. ENT000408).

<sup>674</sup> Entergy NYS-5 Testimony at 96-99 (Ex. ENTR30373).

<sup>675</sup> NL-11-032, Attach. 1 at 7 (Ex. NYS000151).

<sup>676</sup> Duquette Report at 9-10 (Ex. NYS000165).

with the industry guidelines.<sup>677</sup> Those witnesses further testified that, if the 2009 CST piping leak had been indicative of a widespread pipe coating degradation at the site, then subsequent indirect assessments that were performed at IPEC would have verified this condition.<sup>678</sup> Subsequent assessments have not, however, indicated extensive coating degradation.<sup>679</sup>

In comparing Entergy's response to leaks detected at IPEC, observations made at the plant during pipe inspections, and subsequent attributes of its AMP for buried pipes with that of the other plants he has reviewed, Staff witness Mr. Holston testified that: (1) there had been evidence of only one leak in the in-scope buried piping at IPEC, (2) all of IPEC's follow-up inspections revealed good backfill with no severe coating damage, (3) IPEC has proposed the most inspections of the plant's programs that he has seen, (4) IPEC has proposed soil sampling during pipe inspection (putting them in the mainstream of the other plants) and, if it detects corrosive soil, Entergy proposes to increase their inspections significantly more than those at other plants, and (5) through their Corrective Action process and consistent with the Staff's observations during follow-up inspections, Entergy has implemented cathodic protection at the plant based upon its operating experience.<sup>680</sup>

*d. Historic and Existing Cathodic Protection at IPEC*

Witnesses for both the NRC Staff and New York agree that the primary way to control corrosion is to coat the buried pipes at IPEC, and that cathodic protection, where needed, is installed to protect a pipe against any gaps or holidays that might form in that protective layer.<sup>681</sup> Dr. Duquette for New York further testified that he agrees with both Entergy and their consultants that coatings are in place at IPEC and that they are "very good coatings . . . ."<sup>682</sup> But, based on his long-term experience, he opined that most coatings can be damaged, and they are not always constructed correctly — there are faults in the coatings where they have failed either on installation, or else due to something that's happened in the field. Dr. Duquette testified that cathodic protection systems are installed to protect those breached areas.<sup>683</sup>

According to its records, prior to plant construction, Entergy determined that cathodic protection was not required for buried pipes in areas away from the river

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<sup>677</sup> Entergy NYS-5 Testimony at 110 (Ex. ENTR30373).

<sup>678</sup> *Id.*

<sup>679</sup> *Id.*

<sup>680</sup> Tr. at 3922 (Mr. Holston for the NRC Staff).

<sup>681</sup> Tr. at 3858-59 (Mr. Holston for the NRC Staff), 3884-85 (Dr. Duquette for New York).

<sup>682</sup> Tr. at 3886 (Dr. Duquette for New York).

<sup>683</sup> *Id.*

based on the high resistivities of the visually identified subgrade material which consisted mostly of bedrock with areas overlain with relatively dry sandy clay.<sup>684</sup> But along the Hudson River, corrosion protection systems were initially installed to protect the shore structures from corrosive saline water.<sup>685</sup>

Mr. Azevedo testified that IPEC's licensing basis reflects the evaluation of the CP systems installed during plant construction.<sup>686</sup> Specifically, when the need for these systems was reevaluated, the SSCs were found to be capable of performing their safety function without cathodic protection. As a result, those systems were turned off and abandoned in place.<sup>687</sup>

In 2000 a new CP system was designed and installed to protect the bearing piles and sheet pilings in this area.<sup>688</sup> While the original systems had been abandoned, this new system replaced CP systems for these selected riverfront structures.<sup>689</sup>

In addition, according to Mr. Azevedo, three other CP systems were installed and are functioning at IPEC.<sup>690</sup> As previously mentioned, Entergy records indicate that one impressed-current system was placed on the city water line located on the higher ground to the east of the plant where the pipe crosses over the Algonquin natural gas line.<sup>691</sup> Mr. Lee for Entergy estimates that approximately 200 feet of the city water line, centered on the crossing point with the gas pipeline, is now cathodically protected.<sup>692</sup> Another impressed-current system was installed in the area of the IP2 CST lines where a leak was detected in 2009. According to Mr. Azevedo, this system was installed at the lower elevation of the bedrock bench along the western portion of the site to protect approximately 50 to 70 feet of the piping in this area.<sup>693</sup> A third system was placed on the IP3 sewage line.<sup>694</sup>

In addition to these systems, Entergy witnesses also testified that the Applicant has been installing a fourth system on portions of the IP3 AFW/CST buried pipelines at the lower elevation and in the same relative locations as was previously done for IP2.<sup>695</sup> And according to Mr. Lee, by December of 2012, the physical elements had been installed along more than 100 feet of coverage and Entergy

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<sup>684</sup> IP3 UFSAR, Rev. 20 at 59 (Ex. NYSR0013K); IP2 UFSAR, Rev. 20 at 38 (Ex. NYSR0014D).

<sup>685</sup> IP3 UFSAR, Rev. 20 at 59 (Ex. NYSR0013K); IP2 UFSAR, Rev. 20 at 38 (Ex. NYSR0014D).

<sup>686</sup> Tr. at 3843-44 (Mr. Azevedo for Entergy).

<sup>687</sup> *Id.*

<sup>688</sup> Tr. at 3963-64 (Mr. Azevedo for Entergy).

<sup>689</sup> *Id.*

<sup>690</sup> Tr. at 3846 (Mr. Azevedo for Entergy).

<sup>691</sup> Entergy NYS-5 Testimony at 101 (Ex. ENTR30373).

<sup>692</sup> Tr. at 3846-47 (Mr. Lee for Entergy).

<sup>693</sup> Tr. at 3847-48 (Mr. Azevedo for Entergy).

<sup>694</sup> *Id.*

<sup>695</sup> Entergy NYS-5 Testimony at 96 (Ex. ENTR30373).

was adjusting the system to assure that current levels meet industry standards.<sup>696</sup> According to Mr. Azevedo, Entergy also presented plans to install a fifth system along approximately 550 feet of IP2 service water system during 2013.<sup>697</sup> Other identified candidates for future installation of new CP systems are the IP2 service water supply headers and the IP3 dock sheet piling just south of the intake structure.<sup>698</sup>

*e. Preemptive Need for Cathodic Protection at IPEC*

Dr. Duquette for New York testified that he believes cathodic protection should be provided for all the buried piping at IPEC, noting that “Entergy’s own studies show that the soils at Indian Point are mildly to moderately corrosive, warranting cathodic protection as an objective matter.”<sup>699</sup> In support of his position, he stated that “[b]oth the NEI and EPRI documents recommend cathodic protection for critical piping systems.”<sup>700</sup> Further, he testified that in his opinion, EPRI-1016456 requires that “[w]here the risk of failure is unacceptable, preventive and mitigative options should be implemented” and the group of measures to prevent buried pipe corrosion include “coating, cathodic protection, and special trench fill.”<sup>701</sup> While Dr. Duquette stated that he agrees these measures only need implementing when the risk of failure is unacceptable, he went on to express his belief that any leak is an unacceptable failure.<sup>702</sup>

NRC Staff witness Mr. Holston testified that he disagrees with Dr. Duquette, stating that risk of failure is unacceptable only when the affected piping’s intended function cannot be met.<sup>703</sup> It is his expressed opinion that, if the soil conditions are corrosive enough or the backfill is of such poor quality and there have been multiple examples of coating failures, then there is a risk that an intended function of critical systems (e.g., fire protection, AFW, steam generator, or safety injection) might not be met.<sup>704</sup> He stated, however, that pipe coatings are the primary means of protecting the piping and that cathodic protection is only needed to protect the pipe in the event that holidays form in the coating.<sup>705</sup>

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<sup>696</sup> Tr. at 3849 (Mr. Lee for Entergy).

<sup>697</sup> Tr. at 3848-49 (Mr. Azevedo for Entergy).

<sup>698</sup> Entergy NYS-5 Testimony at 110 (Ex. ENTR30373).

<sup>699</sup> New York NYS-5 Testimony at 22 (Ex. NYS000164).

<sup>700</sup> *Id.* at 15; Tr. at 3878 (Dr. Duquette for New York).

<sup>701</sup> NEI 09-14, Rev. 1 at 6-1 (Ex. NYS000168); Tr. at 3879 (Dr. Duquette for New York).

<sup>702</sup> Tr. at 3881 (Dr. Duquette for New York).

<sup>703</sup> Tr. at 3889 (Mr. Holston for the Staff).

<sup>704</sup> *Id.*

<sup>705</sup> Tr. at 3858-59 (Mr. Holston for the Staff).

Entergy witnesses testified that they believe Dr. Duquette mischaracterized the statements in these industry guidance documents, stating that “neither document dictates that cathodic protection be newly installed.”<sup>706</sup> Both the NEI 09-14 and EPRI-1016456 documents acknowledge that CP systems may or may not be installed at a site and provide guidelines for a program that manages buried piping with or without cathodic protection.”<sup>707</sup> Mr. Holston stated that NEI 09-14 and EPRI-1016456 only recommend that “if a CP system exists, then it should be properly tested and maintained.”<sup>708</sup> Mr. Biagiotti testifying for Entergy opined that the measures presented in section 6 of EPRI-1016456 are not a list of required corrective measures, but are options that should be considered when risk of failure is unacceptable.<sup>709</sup> He also maintained that there is no mandate in either EPRI-1016456 or NEI 09-14 requiring that any specific corrective measure, including CP, be implemented.<sup>710</sup>

Dr. Duquette states that, in his opinion, GALL-2 is predicated on the premise that plants have installed cathodic protection, and that the NRC Staff’s ISG “makes clear that, contrary to NRC and Entergy’s expert testimony, failure to provide cathodic protection must be justified, which has not been done by Entergy for Indian Point.”<sup>711</sup> He stated that Entergy has not demonstrated that cathodic protection of IPEC’s buried piping is not required, nor, in his view, have they provided evidence that installation, operation, or surveillance is not practical.<sup>712</sup>

While acknowledging that the GALL-2 recommendations for pipe inspections are predicated on the presence of cathodic protection,<sup>713</sup> Staff witness Mr. Holston testified that the ISG had been developed, in part, to address those facilities that do not have cathodic protection in order to help assure that the intended functions of buried piping will be met in such instances.<sup>714</sup> Mr. Holston, who was the author of the Staff guidance, stated that the ISG was written as a GALL-2 revision for plants without cathodic protection to specifically incorporate recommendations that included soil sampling, additional inspections, and operating experience.<sup>715</sup>

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<sup>706</sup> Entergy NYS-5 Testimony at 107 (Ex. ENTR30373).

<sup>707</sup> *Id.*

<sup>708</sup> Tr. at 3382 (Mr. Holston for the Staff) (citing EPRI-1016456 at 2-8 (Ex. NYS000167)); *see also* Entergy NYS-5 Testimony at 107 (Ex. ENTR30373).

<sup>709</sup> Tr. at 3883 (Mr. Biagiotti for Entergy).

<sup>710</sup> *Id.*

<sup>711</sup> New York NYS-5 Rebuttal Testimony at 7 (Ex. NYSR20399).

<sup>712</sup> Tr. at 3394 (Dr. Duquette for New York).

<sup>713</sup> *Id.* (Mr. Holston for the NRC Staff) (referring to GALL-2 (Exs. NYS00147A-D)).

<sup>714</sup> Tr. at 3735, 3966 (Mr. Holston for the NRC Staff); *see also* Final License Renewal Interim Staff Guidance (ISG), Changes to the Generic Aging Lessons Learned Report Rev. 2 Aging Management Program XI.M41, Buried and Underground Piping and Tanks (LR-LSG-2011-03) (Aug. 2012) (Ex. NRC000162) [hereinafter ISG].

<sup>715</sup> Tr. at 3725-26 (Mr. Holston for the NRC Staff).

But the ISG also states that “an exception must be stated and justified if the basis for not providing cathodic protection is other than demonstrating that external corrosion control (*i.e.*, cathodic protection and coatings) is not required, or demonstrating that installation, operation, or surveillance of a cathodic protection system is not practical.”<sup>716</sup> Specifically,

the justification should include sufficient detail (*e.g.*, soil sample locations, soil sample results, the methodology and results of how the overall soil corrosivity was determined, pipe-to-soil potential measurements) for the staff to independently reach the same conclusion as the Applicant.<sup>717</sup>

When asked at the hearing how the Staff justified not requiring the cathodic protection that was recommended in its ISG prior to concluding that Entergy’s AMP meets GALL-2, Mr. Holston testified that the Applicant addressed this specific issue in its March 28, 2011, RAI Response (NL-11-032).<sup>718</sup> Mr. Holston then outlined enhancements to Entergy’s AMP to compensate for the lack of a site-wide CP system that included: (1) a summary of the coatings that were placed around in-scope piping, (2) inspections that have been performed demonstrating no piping degradation, (3) soil resistivity measurements, (4) risk ranking performed to identify piping segments for the establishment of inspection priorities, and (5) future soil sampling and increased number of inspections.<sup>719</sup> Mr. Holston further stated that the Staff accepted that approach as a justification for not implementing plant-wide cathodic protection, adding that it recognized the difficulties with installing cathodic protection for the plant that is built into bedrock and noting that the Applicant had installed cathodic protection in discrete areas recommended by its consultants.<sup>720</sup>

For his part Dr. Duquette criticized Entergy for submitting, and the NRC Staff for approving, what he called a limited process that takes some corrective measures when leaks are detected, but does not manage the site to assure that corrosion will not occur in the future.<sup>721</sup> Specifically, he testified that he believes it is feasible, reasonable, and economical to require plant-wide cathodic protection, using multiple systems, possibly with a variety of components as a means to reduce the likelihood of leakage from buried pipes at the site.<sup>722</sup>

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<sup>716</sup> ISG at 2 (Ex. NRC000162).

<sup>717</sup> *Id.* at A-3.

<sup>718</sup> NL-11-032, Attach. 1 at 6 (Ex. NYS000151).

<sup>719</sup> Tr. at 3855-56 (Mr. Holston for the NRC Staff).

<sup>720</sup> Tr. at 3856 (Mr. Holston for the NRC Staff).

<sup>721</sup> Tr. at 3893-94 (Dr. Duquette for New York).

<sup>722</sup> Tr. at 3893-98 (Dr. Duquette for New York).

*f. Proposed Soil Testing and Pipe Inspections at IPEC*

In response to the Staff's stated reliance on, *inter alia*, additional inspections and soil testing to compensate for the lack of site-wide cathodic protection, Dr. Duquette for New York testified that he believes Entergy's inspection and soil testing program is not well defined.<sup>723</sup> He then provided numerous examples as to why, in his opinion, the program is inadequate including, among others, disconnect between the risk assessment and the location and procedures for inspections, lack of sampling specifications, and absence of contingencies for unexpected results.<sup>724</sup>

In contrast, Entergy attempted to provide the requisite assurance that the piping will remain capable of performing its intended function by proposing that testing of soil samples and direct visual inspections of piping be made prior to the PEO and repeated periodically during the extended operations in accordance with the details provided in its March 2011 response to the Staff's RAIs.<sup>725</sup> Entergy documents state that it will sample soil to determine its corrosivity prior to the PEO and at least once every 10 years during the PEO to confirm that the soil conditions are not aggressive,<sup>726</sup> and that soil samples will be taken at a minimum of two locations at least three feet below the surface near in-scope piping to obtain representative soil conditions.<sup>727</sup> Moreover, according to Entergy witness, Mr. Biagiotti, soil analyses will include tests relating to corrosivity (e.g., resistivity, anions, cations, pH, and moisture content) that are used along with site drainage conditions to rank locations for corrosion risk.<sup>728</sup>

Additionally, as explained beginning at page 313, above, prior to entering the PEO, Entergy committed to performing twenty direct visual inspections of IP2 piping and fourteen direct inspections for IP3 piping for a total of thirty-four direct inspections.<sup>729</sup> According to Entergy's commitments, these inspections will be performed on both code/safety-related piping and piping containing hazardous materials (i.e., hazmat piping).<sup>730</sup> The six direct (visual and direct UT) inspections that Entergy performed on certain in-scope IP2 buried piping in October 2008 were the first inspections credited under the BPTIP.<sup>731</sup>

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<sup>723</sup> Tr. at 3424 (Dr. Duquette for New York).

<sup>724</sup> Tr. at 3424-25, 3428, 3431-39, 3446-50 (Dr. Duquette for New York).

<sup>725</sup> NL-11-032, Attach. 1 at 9 (Ex. NYS000151).

<sup>726</sup> *Id.* at 6.

<sup>727</sup> *Id.*

<sup>728</sup> Tr. at 3719-21 (Mr. Biagiotti for Entergy).

<sup>729</sup> NL-13-037, Attach. 1 at 1 (Ex. ENT000606).

<sup>730</sup> Declaration of William C. Holston Updating NRC Staff's Testimony on Contention NYS-5 (Buried Piping and Tanks) to Address New Information Submitted by Applicant Entergy Nuclear Operations, Inc. (Apr. 22, 1013) at 3 (Ex. NRC000167); NL-13-037, Attach. 1 at 1 (Ex. ENT000606).

<sup>731</sup> Entergy NYS-5 Testimony at 60 (Ex. ENTR30373).

Further, records submitted by the Applicant stated that as of April 22, 2013, Entergy had completed all twenty inspections for IP2 and four of the fourteen for IP3.<sup>732</sup> At the time of the Staff's TI2516 audit in February 2011, according to Mr. Holston, Entergy had inspected approximately 136 feet of the 18,300 feet of total buried in-scope piping at IPEC — with the recent completion of additional inspections covering even more footage.<sup>733</sup> Mr. Holston testified for the Staff that he has evaluated four other nuclear power plants that do not have cathodic protection and that the amount of piping being inspected at IPEC is on the high end of those plants.<sup>734</sup> Mr. Azevedo for Entergy testified that, aside from the 2009 leak, the inspections performed to date have not detected any significant issues, but instead found suitable soil with coatings in good condition. He concluded that the conditions encountered in the inspections to date "have given me assurance that the buried pipes at Indian Point are in good condition and will perform their intended function."<sup>735</sup>

More specifically, Entergy has committed to perform fourteen direct visual inspections on IP2 piping and sixteen direct visual inspections on IP3 piping every 10 years during the PEO, for a total of sixty inspections during the extended operations.<sup>736</sup> If soils encountered are determined to be corrosive, i.e., "[i]f the soil resistivity is < 20,000 ohm-cm and the soil scores higher than 10 points using AWWA C105,"<sup>737</sup> then "the number of inspections will be increased . . . to ensure the piping can perform its design function during the PEO. The additional inspections will be in locations with aggressive soil condition."<sup>738</sup>

These Entergy commitments provide for a total of ninety-four inspections of in-scope piping to occur prior to and through the PEO, with the provisions for additional inspections should the conditions encountered during the scheduled program indicate the need.<sup>739</sup> Also, Mr. Azevedo for Entergy added that IPEC's piping program is much broader than that, providing for inspections of out-of-scope piping that have not been factored into this total.<sup>740</sup> Mr. Holston for the NRC Staff confirmed that the results of the inspections for both in-scope and

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<sup>732</sup> Joint Declaration of Nelson Azevedo, Alan Cox, and Ted Ivy Concerning Entergy Letter NL-13-037 and Related Updates to Entergy's Testimony on Contention NYS-5 (Buried Piping) (Mar. 20, 2013) at 6 (Ex. ENT000607).

<sup>733</sup> Tr. at 3867 (Mr. Holston for the NRC Staff).

<sup>734</sup> Tr. at 3872 (Mr. Holston for the NRC Staff).

<sup>735</sup> *Id.*

<sup>736</sup> NL-13-037, Attach. 1 at 2 (Ex. ENT000606).

<sup>737</sup> NL-11-032, Attach. 1 at 9 (Ex. NYS000151).

<sup>738</sup> *Id.*

<sup>739</sup> Tr. at 3936-37 (Mr. Azevedo for Entergy).

<sup>740</sup> Tr. at 3863 (Mr. Azevedo for Entergy).

out-of-scope piping will be reviewed to develop the most complete picture of site conditions relating to corrosion potential.<sup>741</sup>

Also proffered by Entergy to demonstrate the efficacy of its efforts to manage corrosion are corporate procedures (EN-EP-S-002-MULTI), which include checklists of steps to be followed in performing these inspections, such as, *inter alia*, the need to look at the backfill for rocks or foreign objects.<sup>742</sup> According to Mr. Azevedo for Entergy, if these inspections discover undesirable backfill material (e.g., containing rocks) that wouldn't meet today's standards, Entergy would be required to write a Condition Report and enter that occurrence into its Corrective Action Program.<sup>743</sup> And as part of the evaluation conducted for its Corrective Action Program, Mr. Azevedo maintained that Entergy is required to determine whether this circumstance constitutes more than an isolated instance and, if so, determine where else this condition can occur.<sup>744</sup>

Mr. Holston for the Staff testified that throughout the entire PEO, if the soil is proven to be corrosive, Entergy will have dug up approximately 7% of the piping at the site.<sup>745</sup> Dr. Duquette, however, testified that he does not believe that the inspection program will be very successful, stating that inspecting roughly 1300 feet of pipe out of 17,000 total feet of piping isn't going to tell very much.<sup>746</sup> He went on to testify that in his judgment Entergy should inspect at least double the proposed pipe footage.<sup>747</sup>

Entergy witness Mr. Azevedo disagreed, stating that based on the results of surveys, inspections, and testing, he believes the site is not conducive for corrosion because the backfill, for the most part, does not contain large rocks and the soils are not corrosive.<sup>748</sup> While the total length of pipe that will be inspected is small compared to the total length of buried pipe at the site, he testified that Entergy's plan calls for excavating at the locations with the highest indications of potential corrosion issues.<sup>749</sup> According to Mr. Azevedo, this, along with the results of the site surveys, demonstrates to his satisfaction that there are not widespread corrosion conditions at IPEC.<sup>750</sup>

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<sup>741</sup> Tr. at 3865 (Mr. Holston for the NRC Staff).

<sup>742</sup> Entergy, Underground Piping and Tanks General Visual Inspection, Rev. 1 (EN-EP-S-002-MULTI) (Nov. 30, 2012) at 14 (Ex. ENT000600).

<sup>743</sup> Tr. at 3835 (Mr. Azevedo for Entergy).

<sup>744</sup> Tr. at 3848 (Mr. Azevedo for Entergy).

<sup>745</sup> Tr. at 3631 (Mr. Holston for the NRC Staff).

<sup>746</sup> Tr. at 3918 (Dr. Duquette for New York).

<sup>747</sup> *Id.*

<sup>748</sup> Tr. at 3615 (Mr. Azevedo for Entergy).

<sup>749</sup> *Id.*

<sup>750</sup> Tr. at 3614-15 (Mr. Azevedo for Entergy).

Finally, as an illustration of what he views as the inadequacy of the Applicant's inspection program, Dr. Duquette for New York testified that the 2009 leak occurred in a pipeline that was inspected just the previous year, arguing that Entergy chose a bad location for the excavation.<sup>751</sup> Recognizing that Entergy's plan to prioritize inspection to those locations with the highest potential for corrosion, Dr. Duquette testified that, in his opinion, it still is not failsafe and he remains concerned that spot inspections will not necessarily detect a potential problem.<sup>752</sup> When asked whether the standard of care should be the prevention of all leaks or a reasonable assurance that the intended function of the pipe is maintained, Dr. Duquette testified that he believes a nuclear power plant should be held to a higher standard than other industries so that there are "procedures to prevent all leaks," but nonetheless did not feel qualified to define what should be the standard in this case.<sup>753</sup>

## ***2. Findings Related to Corrosion Potential, Cathodic Protection, Inspections, and Soil Testing at IPEC***

Based on the preponderance of the evidence before us, we make the following findings relative to IPEC corrosion potential, cathodic protection, and corrosion-related piping inspections and soil testing.

We find that on several different occasions (i.e., 2007, 2008, 2009, and 2012), Entergy detected leaks in buried pipes at IPEC,<sup>754</sup> although there is evidence of only one leak in the in-scope buried piping at IPEC.<sup>755</sup> Entergy's follow-up inspections generally revealed good backfill with no severe coating damage<sup>756</sup> — observations that we find are consistent with test results indicating that the soils in the vicinity of the relevant piping are generally noncorrosive,<sup>757</sup> i.e., with resistivity values usually above 10,000 ohm-cm or scoring 10 or less points using AWWA C105.<sup>758</sup> Thus, while the soils at IPEC are not highly corrosive, site conditions at some locations are conducive for external corrosion of buried pipes

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<sup>751</sup> Tr. at 3634 (Dr. Duquette for New York).

<sup>752</sup> Tr. at 3634-35 (Dr. Duquette for New York).

<sup>753</sup> Tr. at 3636-37 (Dr. Duquette for New York).

<sup>754</sup> NL-09-106, Attach. 1 at 2 (Ex. NYS000203).

<sup>755</sup> Tr. at 3922 (Mr. Holston for the NRC Staff).

<sup>756</sup> *Id.*

<sup>757</sup> Entergy NYS-5 Testimony at 115 (Ex. ENTR30373) (citing A.W. Peabody, Peabody's Control of Pipeline Corrosion 88 (Ronald L. Bianchetti, 2d ed. 2001) (Ex. ENT000390)).

<sup>758</sup> IP3 UFSAR, Rev. 20, at 59 (Ex. NYSR0013K), IP2 UFSAR, Rev. 20, at 38 (Ex. NYSR0014D); Entergy NYS-5 Testimony at 114 (Ex. ENTR30373) (citing PCA Report at 14 & tbls. I-IV (Ex. NYS000178)).

so as to warrant Applicant and Staff consideration of appropriate measures to address the risk associated with potential corrosion situations.

We find that Entergy has implemented the recommendations from the 2008 PCA study by taking several remedial steps including: minimizing stray currents around the city water piping where it crosses the Algonquin gas pipeline, providing a progressive evaluation of cathodic protection needs for high-priority piping services on a zonal basis, and developing an inspection program focused on high-priority zones.<sup>759</sup> In this regard, in 2010, Entergy performed an APEC survey to help (1) define the high-priority zones by identifying areas of adequate cathodic protection levels; (2) identify localized changes in the measured potentials indicative of areas possibly containing corrosion cells; and (3) measure localized variations in earth currents that relate to possible coating degradation.<sup>760</sup> Additionally, Entergy has installed cathodic protection for the stray currents around the city water line where it crosses the Algonquin gas pipeline, and performed the progressive evaluation of cathodic protection by installing an impressed-current system on the IP2 and IP3 CST lines, and by adding sacrificial anodes to the IP3 sewage line.<sup>761</sup> Also, the Applicant will install cathodic protection for the IP2 service water lines in 2013.<sup>762</sup>

The Board further finds that, in accordance with its March 2011 response to the Staff's RAIs, Entergy used site surveys, inspections, and data to augment its AMP for buried pipes by: (1) classifying its pipes according to their safety class, fluid hazards, and leakage impacts; (2) quantifying the corrosion risk that considers piping material, subsurface conditions, coating, and cathodic protection; and (3) establishing inspection priority based on risk assessment.<sup>763</sup> We conclude that, with these additions, Entergy has met the PCA recommendations, and that implementing PCA's suggestions has brought IPEC's program for buried and underground pipes into reasonable agreement with GALL-2.<sup>764</sup>

There is no disagreement among the parties that, while coating buried pipes at IPEC is a primary means to protect against corrosion, cathodic protection systems are also needed in areas of elevated corrosion potential to protect breaches in the coatings that inevitably occur due to construction defects or inadvertent damage.<sup>765</sup> Rather than limiting cathodic protection to areas of higher corrosion risk, however, New York witness Dr. Duquette urges that CP should be required "as an objective matter" or, at a minimum, be seriously considered for all buried

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<sup>759</sup> PCA Report at 16-18 (Ex. NYS000178).

<sup>760</sup> Tr. at 3606 (Mr. Lee for Entergy).

<sup>761</sup> Tr. at 3846-48 (Mr. Azevedo for Entergy).

<sup>762</sup> *Id.*

<sup>763</sup> NL-11-032, Attach. 2 at 2 (Ex. NYS000151).

<sup>764</sup> Duquette Report at 21 (Ex. NYS000165).

<sup>765</sup> Tr. at 3850-51 (Dr. Duquette for New York), 3858-59 (Mr. Holston for the NRC Staff).

SSCs at Indian Point because “Entergy’s own studies show that the soils at Indian Point are mildly to moderately corrosive, warranting cathodic protection.”<sup>766</sup> Dr. Duquette pointed to the 2009 leak in the CST return line as evidence that IPEC’s current proposed inspection program is not sufficient to identify the possibility of future problems with buried pipes at IPEC.<sup>767</sup>

Countering this assertion, Entergy witnesses stated that all the measured soil resistivities taken at multiple depths at numerous locations indicate a negligible potential for corrosivity.<sup>768</sup> They testified that these measurements were consistent with subsequent surveys,<sup>769</sup> and match with the fact that there is only limited evidence of corrosion observed at the site after 40 years of service.<sup>770</sup> We agree and find that the inspections and testing Entergy has performed to date support other evidence of no widespread, highly corrosive conditions, or extensive coating degradation at the site. Based on these results, we find that there is negligible potential corrosivity at most of the IPEC site and that wholesale installation of cathodic protection for buried piping at IPEC is not warranted.

But we also find that there is evidence of underground corrosive conditions and observed degradation of protective coatings around certain buried pipes so as to justify further attention. With the discussion of the details following, we find that the Applicant has provided that attention and reduced corrosion risk at IPEC by installing CP where needed and developing an augmented inspection and testing program that is prioritized by corrosion risk.

While New York argues that Entergy has not provided sufficient details regarding the pipe inspections and soil testing, we find that those programs are adequately defined by the corporate and plant-specific programs, in conjunction with the Applicant’s response to the NRC Staff’s RAIs. The details that Entergy has provided in its existing fleet and plant-specific documents, recited in Sections IV.H.1.c, beginning at page 344, above, and IV.H.1.f, beginning at page 354, above, are sufficient to assure that this aspect of Entergy’s AMP is adequate relative to this aspect of its overall demonstration that the effects of aging of buried pipes will be managed through the PEO.

Recognizing that the prevention of each and every leak is an unrealistic standard, the Board agrees with the NRC Staff that the risk of failure is unacceptable when a buried pipe has the potential to degrade to the point that its intended function cannot be met. We find, however, that there is no reasonable basis to conclude that site conditions at IPEC are sufficiently corrosive to create this

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<sup>766</sup> New York NYS-5 Testimony at 22 (Ex. NYS000164).

<sup>767</sup> *Id.*

<sup>768</sup> Entergy NYS-5 Testimony at 116 (Ex. ENTR30373).

<sup>769</sup> *Id.* at 91-92.

<sup>770</sup> *Id.* at 115.

critical condition. Accordingly, we find that the installation of site-wide cathodic protection at IPEC is not justified.

Neither NEI 09-14 nor EPRI-1016456 guidance recommend that site-wide cathodic protection be installed as a matter of course, but instead recommend that existing CP systems should be properly tested and maintained.<sup>771</sup> We note that both organizations (NEI and EPRI) recognized that the absence of cathodic protection may be addressed by other means, such as risk ranking and the selection of locations to be inspected based on the consequences of failure.<sup>772</sup> For example, EPRI-1016456 suggests other alternatives to CP installation not discussed by Dr. Duquette, including: (1) measures to prevent pipe degradation including pipe replacement with a different material; (2) measures to mitigate failure including prompt leak detection, leak source location and repair; and (3) prevention and mitigation techniques and leak detection as described in the appendices of that guidance. In lieu of site-wide installation of cathodic protection, we find that Entergy has acted within the scope of this guidance by installing cathodic systems at reasonably selected locations, while initiating risk ranking to assist with the selection of additional inspections — actions consistent with this industry guidance.

As to the implications of GALL-2, while we agree it is predicated on the premise that plants have installed cathodic protection, we find that the Staff's ISG was written as a GALL-2 revision to specifically include recommendations for plants without cathodic protection.<sup>773</sup> The Board notes that, lacking site-wide CP at IPEC, Entergy must justify its basis for not providing cathodic protection, including sufficient detail regarding site characteristics relating to the corrosion potential of buried pipes, for the NRC Staff to independently reach the same conclusion in accordance with ISG recommendations.<sup>774</sup>

We agree with the NRC Staff that in its March 28, 2011, RAI response (NL-11-032), Entergy provided adequate justification for not utilizing additional cathodic protection throughout the facility.<sup>775</sup> Therein, the Applicant described five enhancements in its AMP to compensate for the lack of site-wide CP system recited at page 353, above. We agree with the Staff that this is an acceptable justification for not implementing plant-wide cathodic protection, and also recognize that, as testified to by Mr. Holston, the Applicant has followed its consultant's recommendations and installed CP systems in discrete areas indicative of elevated corrosion potential.<sup>776</sup>

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<sup>771</sup> EPRI-1016456, at 2-8 (Ex. NYS000167).

<sup>772</sup> NRC Staff NYS-5 Testimony at 72 (Ex. NRCR20016).

<sup>773</sup> Tr. at 3725-26 (Mr. Holston for the NRC Staff).

<sup>774</sup> ISG at A-3 (Ex. NRC000162).

<sup>775</sup> NL-11-032, Attach. 1 at 6 (Ex. NYS000151).

<sup>776</sup> See Tr. at 3856 (Mr. Holston for the NRC Staff).

New York witness Dr. Duquette testified further that he believes Entergy's inspection and soil testing program, allegedly enhanced by the Applicant to compensate for the lack of site-wide cathodic protection, is not well defined. We disagree.

Finding that, by responses to the Staff's RAIs, which are outlined beginning at page 354, above, Entergy has specified procedures to: (1) sample and test soil for its corrosivity both prior to and during the PEO to confirm that the soil conditions are not aggressive; (2) obtain soil samples at a minimum of two locations at least 3 feet below the surface near in-scope piping;<sup>777</sup> (3) analyze samples for numerous corrosivity parameters that are used along with site drainage conditions to rank locations for corrosion risk;<sup>778</sup> (4) perform a total of thirty-four inspections at IP2 and IP3 prior to the PEO,<sup>779</sup> and thirty direct visual inspections every 10 years for a total of sixty inspections during the PEO;<sup>780</sup> (5) consistent with the NRC Staff's ISG, increase the number of direct visual inspections to forty-two every 10 years if soils encountered are determined to be corrosive (i.e., soil resistivity is < 20,000 ohm-cm and the soil scores higher than 10 points using AWWA C105);<sup>781</sup> (6) perform the inspections in accordance with the checklists presented in corporate procedure EN-EP-S-002-MULTI that includes the need to look at the backfill for rocks or foreign objects; (7) write condition reports for adverse observations and enter them into its Corrective Action Program that, *inter alia*, requires Entergy to determine other site locations in which this condition can occur; and (8) investigate other locations if this condition could occur elsewhere.<sup>782</sup> We find that this degree of specificity reasonably outlines the soil sampling, inspections, and corrective actions needed to provide the information necessary to determine whether there is reasonable assurance that the intended functions of buried pipes will be maintained during the PEO.

Dr. Duquette expressed his doubts about the success of an inspection program that only is looking at less than 8% of the total length of buried lines, and stated his belief that Entergy should be inspecting at least double that percentage.<sup>783</sup> We do not share these doubts or support his suggestion.

We find that Entergy's inspection plan is sufficiently intensive based on the inspection reports to date that generally indicate suitable soil with pipe coating in acceptable condition. We also note that Staff witness Mr. Holston testified that the piping being inspected at IPEC is on the high end of the amount that

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<sup>777</sup> NL-11-032, Attach. 1 at 6 (Ex. NYS000151).

<sup>778</sup> Tr. at 3719-21 (Mr. Lee for Entergy).

<sup>779</sup> NL-13-037, Attach. 1 at 1 (Ex. ENT000606).

<sup>780</sup> *Id.* at 2.

<sup>781</sup> *Id.*; NL-11-074, Attach. 1 at 3-4 (Ex. NYS000152). *See also* ISG at 2 (Ex. NRC000162).

<sup>782</sup> Tr. at 3835 (Mr. Azevedo for Entergy).

<sup>783</sup> Tr. at 3918 (Dr. Duquette for New York).

is being reviewed at four other plants that do not have cathodic protection.<sup>784</sup> Furthermore, we find that, while the length of pipe that will be inspected is small compared to the total length of buried pipe at the site, Entergy is excavating at the locations that have the greatest potential for corrosion issues.<sup>785</sup> It is clear to us from Entergy's and the Staff's uncontested testimony that Entergy's corrective action program will be implemented if any adverse conditions that generally lead to corrosion, such as poor backfill, high soil moisture contents, or damaged coatings, are detected.<sup>786</sup> Accordingly, we find that the length of buried piping to be inspected during the PEO is adequate to identify highly corrosive zones and sufficient to provide data as might be necessary to refocus aging management monitoring to high-priority locations.

Finally, the Board finds that the use of CP has been considered by Entergy, that some systems have been installed at IPEC, that Entergy has established a CP operations and maintenance program under the direction of a designated cathodic protection system engineer, and that this program is being conducted by qualified inspectors.<sup>787</sup> We note that the IPEC program provides for focused inspections of buried piping based on a risk assessment of that piping and the Applicant has performed additional inspections and site evaluations that resulted in the installation of three CP systems at the site. Also, the site has been progressively evaluated for additional systems including one currently being installed and another to start this year.<sup>788</sup> These activities convince us that Entergy has adequately considered cathodic protection for the buried pipes at IPEC.

## **I. Applicant's Obligation to Adhere to Specified Procedures**

### ***1. Evidence Related to the Applicant's Obligation to Adhere to Specified Procedures***

During the hearing on NYS-5, the Board raised several questions relating to the enforceability of Entergy's commitments detailed in the supplemental documents (e.g., industry guidance, corporate programs, plant-specific procedures, and responses to RAIs) that augment GALL-2 and that Entergy offered to demonstrate that the aging of buried pipes will be managed during the PEO.<sup>789</sup> As it relates to its AMP for buried pipes and the associated leakage risk assessment and piping

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<sup>784</sup> Tr. at 3872 (Mr. Holston for the NRC Staff).

<sup>785</sup> Tr. at 3614-15 (Mr. Azevedo for Entergy).

<sup>786</sup> *Id.*

<sup>787</sup> Entergy NYS-5 Testimony at 107 (Ex. ENTR30373).

<sup>788</sup> Tr. at 3846-49 (Mr. Azevedo for Entergy).

<sup>789</sup> See, e.g., Tr. at 3464-76, 3546-50, 3640-81.

inspection process, the Applicant's witnesses stated that "Entergy license renewal Commitment 3 makes explicit Entergy's obligation to implement the BPTIP."<sup>790</sup> In addition, Staff witness Mr. Holston stated that critical aspects of the AMP such as Commitment 3 for buried pipes are captured in UFSAR Supplement pursuant to 10 C.F.R. § 54.21(d).<sup>791</sup>

As defined in 10 C.F.R. § 54.3, the CLB for the PEO includes Commitment 3 through the incorporation of the Applicant's UFSAR Supplement. As Ms. Green summarized for the Staff, once the license is renewed, Entergy must submit updates to their UFSAR, which would become part of their CLB.<sup>792</sup> She also accurately noted that Entergy's commitments are documented in Appendix A of the Staff's SER which, in turn, is included in the Applicant's CLB.<sup>793</sup>

Also in that regard, Staff witness Mr. Holston testified that the UFSAR Supplement is a far more important document than the LRA, which "doesn't live" after the Staff has issued its SER.<sup>794</sup> We agree with Mr. Holston. He stated that the UFSAR Supplement, as presented in modifications to Appendix A of the LRA, is a reference document that the Staff uses, along with its SER, to judge the key aspects of an AMP and to determine what an Applicant must do to address program changes.<sup>795</sup>

Mr. Holston and Ms. Green also testified that a commitment in the UFSAR cannot be changed without the NRC Staff oversight and, specifically, evaluation

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<sup>790</sup> Entergy NYS-5 Testimony at 17 (Ex. ENTR30373).

<sup>791</sup> Tr. at 3530-31 (Mr. Holston for the NRC Staff). As stated in NL-11-032 and SER Supp. 1, Commitment 3 reads as follows:

Implement the Buried Piping and Tanks Inspection Program for IP2 and IP3 as described in LRA Section B.1.6. This new program will be implemented consistent with the corresponding program described in NUREG-1801 Section XI.M34, Buried Piping and Tanks Inspection. Include in the Buried Piping and Tanks Inspection Program described in LRA Section B.1.6 a risk assessment of in-scope buried piping and tanks that includes consideration of the impacts of buried piping or tank leakage and of conditions affecting the risk for corrosion. Classify pipe segments and tanks as having a high, medium or low impact of leakage based on the safety class, the hazard posed by fluid contained in the piping and the impact of leakage on reliable plant operation. Determine corrosion risk through consideration of piping or tank material, soil resistivity, drainage, the presence of cathodic protection and the type of coating. Establish inspection priority and frequency for periodic inspections of the in-scope piping and tanks based on the results of the risk assessment. Perform inspections using inspection techniques with demonstrated effectiveness.

NL-11-032, Attach. 2 at 2 (Ex. NYS000151); SER Supp. 1 at A-2 (Ex. NYS000160).

<sup>792</sup> Tr. at 3966 (Ms. Green for the NRC Staff).

<sup>793</sup> Tr. at 3641 (Ms. Green for the NRC Staff).

<sup>794</sup> Tr. at 3542 (Mr. Holston for the NRC Staff).

<sup>795</sup> *Id.*

of the eight criteria listed in 10 C.F.R. § 50.59.<sup>796</sup> As an example, at the hearing Mr. Holston and Ms. Green stated that because inspections are a critical aspect of Entergy's AMP, the specific number of these inspections proffered by Entergy have been incorporated into the IP2 and IP3 UFSAR and presented in the modified commitment tables included by Entergy in NL-11-090.<sup>797</sup> Ms. Green confirmed that this commitment has been tabulated and issued as part of the SER, which will make it a part of IPEC's CLB if the Applicant receives its renewed license.<sup>798</sup> While Commitment 3 is listed in both documents, Ms. Green testified that she gives more weight to what is included in the UFSAR Supplement, because the supplement is incorporated into the UFSAR, and any changes made to Entergy's UFSAR must go through the 10 C.F.R. § 50.59 process.<sup>799</sup>

Mr. Holston noted that it was the Staff's position that, in contrast to the UFSAR, corporate policies adopted by Entergy, including corporate programs (e.g., EN-DC-343, CEP-UPT-0100, EN-EP-S-002-MULTI) and plant-specific procedures (e.g., SEP-UIP-IPEC), "are not binding on the licensee, for NRC regulatory purposes," and "would not be enforced by the NRC unless they are incorporated in the current or renewed license or otherwise become NRC requirements."<sup>800</sup>

Nevertheless, Energy has responded to numerous RAIs issued by the NRC Staff that define the detailed steps and procedures of its AMP and provided commitments in order to assure the effects of aging for buried pipes are managed through the PEO.<sup>801</sup> Mr. Cox for Entergy stated that, while ultimately the description of the AMP is still in Appendix B of the LRA, Entergy's Responses to RAIs often contain changes "to the SER supplement or Appendix A of the Application," and that Entergy "would make corresponding changes to Appendix B, and it would also be reflected in a RAI response."<sup>802</sup>

Staff witness Mr. Holston testified that "[t]he UFSAR supplement represents the capturing of the critical aspects of the program, as required by 10 C.F.R.

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<sup>796</sup> Tr. at 3530-31 (Mr. Holston for the NRC Staff), 3968 (Ms. Green for the NRC Staff).

<sup>797</sup> Tr. at 3641-43 (Mr. Holston and Ms. Green for the NRC Staff); *see also* NL-11-090, Attach. 1 at 2 (Ex. NYS000153).

<sup>798</sup> Tr. at 3645 (Ms. Green for the NRC Staff); SER Supp. 1 at 3-1 (Ex. NYS000160).

<sup>799</sup> Tr. at 3645 (Ms. Green for the NRC Staff).

<sup>800</sup> NRC Staff NYS-5 Testimony at 43 (Ex. NRCR20016); Tr. at 3919 (Mr. Holston for the NRC Staff).

<sup>801</sup> Tr. at 3390 (Mr. Holston for the NRC Staff); *see also* NL-09-106 (Ex. NYS000203); NL-09-111 (Ex. NYS000171); NL-11-032 (Ex. NYS000151); NL-11-074 (Ex. NYS000152); NL-11-090 (Ex. NYS000153); NL-12-174 (Ex. ENT000597); SER Supp. 1 (Ex. NYS000160).

<sup>802</sup> Tr. at 3463 (Mr. Cox for Entergy).

§ 54.21(d), into the Applicant’s current licensing basis.”<sup>803</sup> Regardless of the details provided in the LRA, the details provided in the UFSAR Supplement that is generated as a result of the NRC Staff’s review of the LRA is placed into the final SAR, providing the regulatory basis for assuring implementation of the AMP procedures by reason of their incorporation into the CLB for the plant so as to remain in effect for the remainder of IPEC’s operational life.<sup>804</sup>

Dr. Duquette, testifying on behalf of New York, criticized Entergy’s AMP for buried pipes as lacking specificity in outlining its program.<sup>805</sup> While he testified that he agreed that “Entergy has offered more detail in corporate documents it disclosed (of primary relevance EN-DC-343 (Rev. 4), CEP-UPT-0100, and SEP-UIP-IPEC),” he expressed his concern that “these internal documents are not included in the commitment from Entergy or made a part of the LRA” and are “presumably subject to modification by Entergy without NRC approval and would not be obligations imposed on Entergy by a renewed license.”<sup>806</sup>

As was detailed above, if a procedure is not specifically called out in the UFSAR, Entergy may change it without using the license amendment process described in 10 C.F.R. § 50.59(c)(1). Nonetheless, as Staff witness Ms. Green testified, proposed changes must first go through a screening to determine whether there is a significant safety question associated with making the change.<sup>807</sup> Staff witness Mr. Holston concurred with the description of the section 50.59 review process, adding that an applicant can only make a change in its procedures if screening demonstrates that the section 50.59 regulations do not apply, or if the section 50.59 review demonstrates that there are no remaining unreviewed safety questions.<sup>808</sup>

Entergy witness Mr. Cox likewise concurred, stating that any change to any procedure would be screened by Entergy to determine if the provisions of 10 C.F.R. § 50.59 apply.<sup>809</sup> Entergy witness Mr. Azevedo added that this screening asks whether there is any adverse impact associated with the change, and, if so, requires that the eight criteria of section 50.59 are evaluated to determine if the

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<sup>803</sup> Tr. at 3530-31 (Mr. Holston for the NRC Staff). With regard to the record of this proceeding, Mr. Holston testified that the July 27, 2011 UFSAR Supplement is presented in NL-11-090 (Ex. NYS000153) and that Entergy’s exhibit ENT000597 is the most recent UFSAR dated November 29, 2012. Tr. at 3528 (Mr. Holston for the NRC Staff).

<sup>804</sup> Tr. at 3541 (Mr. Holston for the NRC Staff).

<sup>805</sup> New York NYS-5 Testimony at 18 (Ex. NYS000164).

<sup>806</sup> *Id.* at 19.

<sup>807</sup> Tr. at 3969 (Ms. Green for the NRC Staff).

<sup>808</sup> Tr. at 3403, 3472-73 (Mr. Holston for the NRC Staff).

<sup>809</sup> Tr. at 3402-03 (Mr. Cox for Entergy).

impact is more than minimal.<sup>810</sup> If it is, these changes require Entergy to obtain a license amendment in accordance with 10 C.F.R. § 50.59(c)(1).

At the hearing, Mr. Azevedo for Entergy stated that the results of the screening process are documented and maintained at the site by the company so as to be available for Staff review. Furthermore, the Staff audits the Applicant's section 50.59 process on an annual basis.<sup>811</sup> The Staff supported this position,<sup>812</sup> and, regarding oversight of Entergy's section 50.59 screening process, Mr. Holston testified that the Staff performs specific inspections that look at a wide range of the screening that the Applicant has conducted to ensure that the process is being followed properly.<sup>813</sup>

## ***2. Findings Related to Applicant's Obligation to Adhere to Specified Procedures***

Based on the preponderance of the evidence before us, we find that Entergy's BPTIP will be implemented as the AMP for the buried pipes at IPEC through Commitment 3 as documented in the Applicant's UFSAR Supplement and in the Staff's SER Supplement. Moreover, pursuant to 10 C.F.R. § 54.3(a), the commitments in these documents are legally binding as part of the CLB throughout the PEO and can only be changed through the section 50.59 process.

We find that the BPTIP, as updated to meet the major aspects of GALL-2 and the Staff's ISG, is reflected in Entergy's Commitment 3 for buried pipes. Furthermore, implementing procedures for Entergy's BPTIP at IPEC have been developed through the use of fleet-wide programs and plant-specific documents. And because the obligations specified in Commitment 3 are binding, Entergy would be operating outside its CLB if it did not follow the corporate programs defined by EN-DC-343 (Rev. 4), CEP-UPT-0100, and EN-EP-S-002-MULTI, plant-specific procedures in SEP-UIP-IPEC, and the commitments made in responses to the Staff's RAIs including those specifically expressed in NL-11-032, NL-11-074, and NL-11-090.

To be sure, procedures not incorporated into the Applicant's UFSAR Supplement and the Staff's SER Supplement are not legally binding in the sense that proposed changes to these plans would necessitate license amendments. Nonetheless the Applicant is still required to screen changes to all procedures to ascertain if the proposed modification could have any adverse impact, and, if so, to evaluate the eight criteria of section 50.59 to determine whether the level of

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<sup>810</sup> Tr. at 3663-64 (Mr. Azevedo for Entergy).

<sup>811</sup> Tr. at 3943 (Mr. Azevedo for Entergy).

<sup>812</sup> Tr. at 3968 (Ms. Green for the NRC Staff).

<sup>813</sup> Tr. at 3404 (Mr. Holston for the NRC Staff).

impact would necessitate a license amendment for this change. Given that this entire process is documented, and is audited by the Staff, we find that even for those procedures that have not been incorporated into formal commitments made in the UFSAR Supplement and specifically added to the CLB for the PEO, there is a suitable process in place to ensure that any proposed change to those procedures will be appropriately reviewed to determine whether the change is subject to the section 50.59 license amendment regime.

#### **J. Summary of Findings Relating to the Adequacy of Entergy's AMP for Buried Pipes at IPEC**

Based on the preponderance of the evidence before it, the Board finds that the BPTIP has been an evolving program that has been measurably enhanced with the publication of GALL-2, the ISG, the Applicant's response to RAIs, and Entergy programs and procedural documents covering the steps that must be taken to implement the AMP for buried piping at IPEC. Based on the current state of this program as well as the amendments to Entergy's LRA that include responses to the Staff's RAIs,<sup>814</sup> Commitment 3 made by Entergy (and its incorporation into the Applicant's UFSAR), and the corporate documents and site-specific program description,<sup>815</sup> the Board finds that the Applicant's AMP for buried piping provides reasonable assurance that Entergy will be capable of managing the effects of the aging on these components so that their intended functions will be maintained throughout the PEO.<sup>816</sup>

NYS-5 only challenges Entergy's AMP for buried piping within the scope of license renewal that conveys or otherwise contains radioactive fluids. Consequently, this contention's challenge is not coextensive with the Applicant's AMP for piping in that this contention does not encompass either IPEC underground piping or buried tanks. In its initial LRA, Entergy stated that its AMP for buried pipes is a new program that is consistent with the NRC guidance document applicable at the time the application was submitted, i.e., GALL-1.<sup>817</sup>

Since the LRA was submitted, however, Entergy's initial program has been

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<sup>814</sup> See NL-11-032 (Ex. NYS000151); NL-11-074 (Ex. NYS000152); NL-11-090 (Ex. NYS000153).

<sup>815</sup> See EN-DC-343 (Ex. NYS000172), CEP-UPT-0100 (Ex. NYS000173), and EN-EP-S-002-MULTI, Rev. 0 (Ex. ENT000408); see also SEP-UIP-IPEC (Ex. NYS000174).

<sup>816</sup> Similar to our conclusion that the AMP submitted with the original LRA was deficient, we also conclude that, absent the clarifying documents noted above, the current AMP would be deficient. Certainly, the mere mention of GALL-2 is not sufficient to demonstrate that the required attributes of the program will be achieved during the PEO, at least not without the clarifying procedures presented in the supplemental documents. Furthermore, we can discern no technical reason why documents such as these could not be submitted with or at least summarized in the LRA in the future.

<sup>817</sup> LRA at B-27 to -28 (Ex. ENT00015B).

significantly augmented.<sup>818</sup> The industry published new guidelines,<sup>819</sup> the buried piping program in GALL-1 was significantly revised in GALL-2 to include a wealth of details defining the ten program elements;<sup>820</sup> Entergy developed numerous corporate-wide<sup>821</sup> and plant-specific<sup>822</sup> procedural documents relating to the management of aging for buried piping, the Applicant prepared responses to the NRC Staff's RAIs that define the detail of the steps and procedures of its AMP,<sup>823</sup> and Entergy made numerous commitments to assure that the intended functions of its buried piping will be adequately managed through the PEO.<sup>824</sup> We find that with these commitments and the description of the program procedures now contained in Entergy's corporate documents and site-specific procedures, its AMP is consistent with industry guidelines and with the program attributes presented in GALL-2 and that the AMP satisfies the requirements of 10 C.F.R. § 54.21(a)(3).

In responding to the challenges raised in this contention, the Applicant and the NRC Staff witnesses stated that the only safety-related function for buried piping is to provide a pressure boundary necessary to maintain flow or storage.<sup>825</sup> In accordance with 10 C.F.R. § 54.4(b) and (a)(1)(iii), we find that buried SSCs must also control inadvertent radiological releases to assure that dose exposures are below the regulatory limits. Be that as it may, a showing that radiological releases are controlled to acceptable levels will likely be a low hurdle to clear because maintaining the necessary pressure boundary will, in the process, limit the mass of radiological releases to values that will not increase the dose exposures to any measurable level. In any event, we find that there is no evidence that the leaks

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<sup>818</sup>The initial AMP submitted by Entergy with its LRA consisted of statements promising to develop and implement a program that is consistent with GALL-1, a two-page generic description of the general ten attributes that need to be addressed in managing aging for buried pipes. Entergy and the Staff maintained that merely committing to the future development of a program, consistent with GALL, would be sufficient to demonstrate that the effects of aging are being adequately managed during the PEO. Consistent with the Commission's ruling in *Vermont Yankee*, the Applicant must, however, demonstrate consistency with GALL. Accordingly, committing to develop sometime in the future a program that will be consistent with GALL is not sufficient demonstration, by itself, that the effects of aging will be managed throughout the PEO in accordance with 10 C.F.R. § 54.21(a)(3).

<sup>819</sup>EPRI-1016456 (Ex. NYS000167); NEI 09-14, Rev. 1 (Ex. NYS000168).

<sup>820</sup>GALL-1 at XI.M41-1 to -41 (Ex. NYS00146D).

<sup>821</sup>EN-EP-S-002-MULTI, Rev. 0 (Ex. ENT000408); EN-DC-343 (Ex. NYS000172); CEP-UPT-0100 (Ex. NYS000173).

<sup>822</sup>See SEP-UIP-IPEC (Ex. NYS000174).

<sup>823</sup>Tr. at 3390 (Mr. Holston for the NRC Staff); NL-11-032 (Ex. NYS000151); NL-11-074 (Ex. NYS000152); NL-11-090 (Ex. NYS000153).

<sup>824</sup>NL-11-090 (Ex. NYS000153); SER Supp. 1 (NYS000160).

<sup>825</sup>NRC Staff NYS-5 Testimony at 25 (Ex. NRCR20016); Entergy NYS-5 Testimony at 76 (Ex. ENTR30373).

at IPEC have contributed sufficient radioactivity to create any meaningful dose exposure impact.

As compared with other nuclear power plants (NPPs), the NRC Staff concluded that IPEC's buried pipe program is equal to or superior to other NPP programs by proposing a number of inspections, sampling soil for corrosion potential, and significantly increasing the number of inspections if corrosive soil is encountered. We find that Entergy's AMP for buried pipes incorporates provisions to address adverse corrosive field conditions if encountered during its inspection program, and includes Entergy's Corrective Action process to correct any adverse conditions.

Leaks in buried pipes have been detected at IPEC. We find, however, that the operating experience at IPEC is consistent with the experience at other NPPs,<sup>826</sup> and note, as detailed below, that, as dictated by its operational experience, Entergy has provided additional corrosion protection (i.e., beyond coatings) by installing CP systems in critical areas for in-scope buried pipes to assure that the effects of aging are managed through the PEO. The Board further finds that Entergy has taken action to manage this aging effect through the PEO in accordance with GALL-2 and the NRC Staff's ISG. As part of this, Entergy has evaluated both plant-specific and nuclear industry operating experience with subsurface corrosion as it developed its AMP for buried pipes.

The Board also finds that Entergy has looked at the root causes of leaks and applied that (and other factors) in defining those pipe locations at IPEC that are most at risk for corrosion. From this, Entergy has developed a program that establishes inspection priorities for those critical areas, evaluates the need for corrosion protection, and implements CP systems when warranted. For instance, the Applicant has installed selected cathodic protection systems at the plant based upon operating experience and relative corrosion risk, giving us confidence that it will continue to do so for high-risk piping. Nor does the Applicant appear to be reluctant to install new systems, although we would anticipate that capital expense and power demands may limit Entergy's activities to installing systems only where the conditions and inspections show that it will provide a reasonable benefit given the risk involved.<sup>827</sup>

Nonetheless, to compensate for this lack of plant-wide cathodic protection, we find that Entergy has adequately augmented its program in accordance with the Staff's ISG by: (1) developing a summary of the coatings that have been placed around the in-scope piping, (2) performing inspections which have demonstrated limited piping degradation, (3) surveying the site for soil resistivity measurements

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<sup>826</sup> GALL-2 at XI.M41-13 (Ex. NYS00147D); *see also* Entergy NYS-5 Testimony at 88-89 (Ex. ENTR30373).

<sup>827</sup> Tr. at 3862-63 (Mr. Azevedo for Entergy).

to characterize the subsurface conditions for corrosion potential, (4) ranking the piping by the risk for corrosion to identify critical piping segments for the establishment of inspection priorities, and (5) proposing to further increase the number of inspections and soil sampling if corrosive conditions are encountered during future inspections.<sup>828</sup> We thus agree with the Staff that this is an acceptable justification for not implementing plant-wide cathodic protection, particularly given the Applicant's efforts to install cathodic protection in those areas in which, based on its risk evaluation efforts, elevated corrosion potential is extant.<sup>829</sup>

At the same time, as a part of its review, the NRC Staff concluded that: (1) an applicant can develop an AMP that is consistent with GALL without providing cathodic protection; (2) IPEC's inspection program in its AMP is consistent with the NRC Staff's ISG recommendations for a site without cathodic protection; and (3) no significant failures of in-scope piping systems have occurred at Indian Point that warrant installing site-wide cathodic protection.<sup>830</sup> Instead, the Staff concluded that additional soil sampling and inspections constitute an acceptable alternative to installing cathodic protection.<sup>831</sup> We agree with the Staff's conclusions and find that Entergy's program is a reasonable approach for IPEC by focusing attention on the critical areas that are prone to buried piping corrosion rather than requiring blanket, site-wide installation of cathodic protection.

A central New York claim with this contention is that cathodic protection should be provided, or at least seriously considered, for all buried SSCs at IPEC because "Entergy's own studies show that the soils at Indian Point are mildly to moderately corrosive, warranting cathodic protection as an objective matter."<sup>832</sup> Conversely, Entergy argues that all the recent measured soil resistivities indicate negligible potential for corrosivity,<sup>833</sup> and is consistent with the fact that there is only limited evidence of corrosion observed at the site after 40 years of service.<sup>834</sup> Furthermore, Entergy stated that if additional tests indicate that the soils are corrosive, the number of piping inspections will be increased by approximately 30% during each 10-year period,<sup>835</sup> which is consistent with the Staff's ISG.<sup>836</sup> We find, based on the preponderance of the evidence, that the need for cathodic protection has been seriously considered but that the site tests indicate the soils

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<sup>828</sup> Tr. at 3855-56 (Mr. Holston for the NRC Staff).

<sup>829</sup> Tr. at 3856 (Mr. Holston for the NRC Staff).

<sup>830</sup> NRC Staff NYS-5 Testimony at 55-60 (Ex. NRCR20016).

<sup>831</sup> *Id.* at 59.

<sup>832</sup> New York NYS-5 Testimony at 22 (Ex. NYS000164).

<sup>833</sup> Entergy NYS-5 Testimony at 92-93 (Ex. ENTR30373).

<sup>834</sup> *Id.* at 115, 117.

<sup>835</sup> NL-11-074, Attach. 1 at 3-4 (Ex. NYS000152).

<sup>836</sup> ISG at 2 (Ex. NRC000162).

are generally noncorrosive so that wholesale installation of cathodic protection for buried piping is not warranted.

New York also claims that industry guidelines recommend cathodic protection for critical piping systems<sup>837</sup> and that Entergy's own consultant, when recommending reinstallation of the original cathodic protection systems that were abandoned,<sup>838</sup> opined that “[i]t should not be a major exercise to expand the existing cathodic protection system to the piping under consideration in Contention NYS-5.”<sup>839</sup> Counter to New York’s testimony, the NRC Staff clarified that neither NEI nor EPRI recommended the use of cathodic protection for all critical piping systems, but only recommended cathodic protection for situations where the risk of failure is unacceptably high. The NRC Staff recognized that the absence of cathodic protection may be addressed by other means, such as risk ranking and the selection of locations to be inspected based on the consequences of failure.<sup>840</sup> Moreover, the Applicant’s consultant, PCA, ultimately recommended that only the city water line be cathodically protected and that the site be progressively evaluated to determine the need for any further cathodic protection at the site.<sup>841</sup> Entergy subsequently adhered to both these recommendations, which we find to be an acceptable response to addressing the question of the need for cathodic protection. Thus, in lieu of site-wide installation of cathodic protection, Entergy has constructed appropriately selected cathodic protection systems, and initiated risk ranking to assist with the selection of additional inspections for possible future CP installations.

Also relevant in this regard are the NRC Staff’s conclusions, as a part of its review of the IPEC AMP, that (1) an applicant can develop an AMP that is consistent with GALL without providing cathodic protection; that (2) Indian Point’s inspection program in its AMP is consistent with the Staff’s ISG recommendations for a site without cathodic protection; and (3) no significant failures of in-scope piping systems that might mandate installing cathodic protection have occurred at Indian Point.<sup>842</sup> The NRC Staff concluded that additional soil sampling and inspections constitute an acceptable alternative to installing cathodic protection.<sup>843</sup> Based on the preponderance of the evidence, we agree.

Specifically, the Board finds that the use of cathodic protection has been seriously considered by Entergy, resulting in an operations and maintenance program being established under the direction of a designated cathodic protection

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<sup>837</sup> New York NYS-5 Testimony at 15 (Ex. NYS000164).

<sup>838</sup> *Id.*

<sup>839</sup> New York NYS-5 Rebuttal Testimony at 13 (Ex. NYSR20399).

<sup>840</sup> NRC Staff NYS-5 Testimony at 70 (Ex. NRCR20016).

<sup>841</sup> Tr. at 3715-16 (Mr. Azevedo for Entergy).

<sup>842</sup> NRC Staff NYS-5 Testimony at 58 (Ex. NRCR20016).

<sup>843</sup> *Id.* at 59.

system engineer and a risk assessment program being conducted by qualified inspectors.<sup>844</sup> Under these programs, the Applicant has performed additional inspections and site evaluations that resulted in the installation of three cathodic protection systems at the site, with the site also being progressively evaluated for additional systems including one currently being installed and another slated to start in 2013.<sup>845</sup>

Based on this, the Board finds that the amendments to the LRA and the commitments made by Entergy, along with the corporate documents and site-specific program descriptions, demonstrate that the Applicant's AMP for buried piping assures that the aging of these components will be managed so that their intended functions will be maintained through the PEO.

#### **K. Conclusions of Law**

By a preponderance of the evidence, Entergy has provided reasonable assurance that the effects of aging on buried pipes at IPEC that contain or may contain radioactive fluids can be adequately managed during the PEO as required by 10 C.F.R. § 54.21(a)(3). Entergy's current program, submitted as an addendum to its LRA to address all attributes of GALL-2, documents that buried piping will be monitored and remediated, as necessary, to assure that its intended functions will be maintained during the PEO. The issues regarding the adequacy of Entergy's AMP for buried pipes raised by NYS-5 have been resolved in favor of the Applicant and do not prevent the NRC from issuing the requested renewal licenses.

### **V. SAFETY CONTENTION NYS-6/7 (NON-E/Q INACCESSIBLE CABLES)**

#### **A. Statement of Contentions NYS-6 and NYS-7**

NYS-6 and NYS-7, safety contentions challenging the aging management of certain electric cables, were consolidated for hearing by the Board and, as litigated at the evidentiary hearing on December 12, 2012, read as follows:

NYS-6: The license renewal application for IP2 and IP3 fails to comply with the requirements of 10 C.F.R. §§ 54.21(a) and 54.29 because Applicant has not proposed a specific plan for aging management of non-environmentally qualified inaccessible medium-voltage cables and wiring for which such aging management is required.

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<sup>844</sup>Entergy NYS-5 Testimony at 109 (Ex. ENTR30373).

<sup>845</sup>Tr. at 3846-49 (Mr. Azevedo for Entergy).

NYS-7: The license renewal application for IP2 and IP3 fails to comply with the requirements of 10 C.F.R. §§ 54.21(a) and 54.29 because Applicant has not proposed a specific plan for aging management of non-environmentally qualified inaccessible low-voltage cables and wiring for which such aging management is required.

For ease of discussion, these two contentions are referred to below collectively as NYS-6/7.

## B. NYS-6/7 Background

### 1. NYS-6/7 Procedural History

NYS-6 and NYS-7 were filed as part of New York's petition to intervene on November 30, 2007.<sup>846</sup> NYS-6 alleged that Entergy failed to comply with 10 C.F.R. §§ 54.21(a) and 54.29 because its LRA lacked a specific program that could adequately manage aging effects on non-environmentally qualified (non-EQ) inaccessible medium-voltage cables and wiring.<sup>847</sup> New York asserted that the failure to properly manage aging in this area challenged "the integrity of the reactor coolant pressure boundary"; "the capability to shut down the reactor and maintain it in a safe shutdown condition"; and "the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures."<sup>848</sup> In addition, New York cautioned that "failure to properly manage aging of the Non-EQ Inaccessible Medium-Voltage Cables could result in the loss of the 6.9 kV and 13.8 kV safety related buses that supply emergency power to the 480-volt safety equipment including Station Blackout (SBO) loads, service water motors/pumps, safety injection pumps, and other electrical loads" and that the consequence of such failures "may result in accidents beyond the Design Basis Accidents resulting in exposures to the public."<sup>849</sup>

NYS-7 alleged that Entergy failed to comply with 10 C.F.R. §§ 54.21(a) and 54.29 because its LRA lacked a specific aging management program for non-EQ inaccessible low-voltage cables and wiring.<sup>850</sup> New York asserted that Entergy's LRA ignored aging management for low-voltage cables in its entirety, despite the fact that the failure to properly manage aging of non-EQ inaccessible low-voltage cables may adversely impact "[t]he integrity of the reactor coolant pressure boundary"; "[t]he capability to shut down the reactor and maintain it

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<sup>846</sup> New York Petition at 92-103.

<sup>847</sup> *Id.* at 92.

<sup>848</sup> *Id.* at 92-93.

<sup>849</sup> *Id.* at 93.

<sup>850</sup> *Id.* at 100; *see* LBP-08-13, 68 NRC at 84.

in a safe shutdown condition”; and “[t]he capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures.”<sup>851</sup>

On July 31, 2008, we admitted both contentions.<sup>852</sup> In so doing, we stated that 10 C.F.R. § 54.21(a)(3) requires that the Integrated Plant Assessment demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation.<sup>853</sup> We emphasized that a commitment to develop a program in the future does not demonstrate that the effects of aging will be adequately managed and that the purpose of the hearing process is to provide intervenors with “the opportunity to challenge the adequacy of the AMP before the license is issued.”<sup>854</sup>

## **2. Legal Standards and Issues Related to NYS-6/7**

NYS-6/7 concerns the adequacy of Entergy’s AMP for inaccessible, non-EQ medium- and low-voltage cables.<sup>855</sup> The standards for evaluating the adequacy of an AMP are detailed in Section II.B, above. Briefly, 10 C.F.R. §§ 54.21(a)(3) and 54.29(a) require us to determine whether Entergy has demonstrated that the effects of aging on low-voltage and medium-voltage cables and wiring will be adequately managed, such that there exists reasonable assurance that low-voltage and medium-voltage cables and wiring will continue to perform their intended functions during the period of extended operation.

The specific issues in controversy before the Board are twofold:<sup>856</sup> (1) whether Entergy’s AMP for inaccessible non-EQ cables exposed to significant moisture lacks critical information for testing to be conducted before and during the PEO, including testing methods, assessment criteria, and corrective actions;<sup>857</sup> and (2) whether Entergy must include an AMP focused on exposure of the non-EQ inaccessible low- and medium-voltage power cables to excessive heating.<sup>858</sup>

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<sup>851</sup> New York Petition at 101-02.

<sup>852</sup> LBP-08-13, 68 NRC at 86.

<sup>853</sup> *Id.*; see also 10 C.F.R. § 54.21.

<sup>854</sup> LBP-08-13, 68 NRC at 86.

<sup>855</sup> NYS-6 and NYS-7 were consolidated by the Board in LBP-08-13. See LBP-08-13, 68 NRC at 40-41.

<sup>856</sup> See State of New York’s Revised Statement of Position Regarding Contentions NYS-6 and NYS-7 (June 29, 2012) at 1-2 (Ex. NYS000410).

<sup>857</sup> *See id.* at 1.

<sup>858</sup> *Id.*

### **3. Evidentiary Record Related to NYS-6/7**

#### *a. Identification of Witnesses Who Provided Testimony Relevant to NYS-6/7*

Entergy presented four witnesses on NYS-6/7 — Alan Cox,<sup>859</sup> Thomas S. McCaffrey,<sup>860</sup> Robert B. Rucker,<sup>861</sup> and Howard G. Sedding.<sup>862</sup> On March 29, 2012, Entergy filed the written direct testimony of its four witnesses,<sup>863</sup> which was admitted into evidence on October 15, 2012.<sup>864</sup>

The NRC Staff presented two witnesses on NYS-6/7 — Cliff K. Doutt<sup>865</sup> and Duc Nguyen.<sup>866</sup> On March 30, 2012, the NRC Staff filed the written testimony of these witnesses,<sup>867</sup> which was admitted into evidence on October 15, 2012.<sup>868</sup>

New York presented a single witness on NYS-6/7 — Earle C. Bascom.<sup>869</sup> On December 15, 2011, New York filed Mr. Bascom's written direct testimony.<sup>870</sup> On June 29, 2012, New York submitted the rebuttal testimony of Mr. Bascom.<sup>871</sup> Both submissions were admitted into evidence on October 15, 2012.<sup>872</sup>

#### *b. Identification of Admitted Exhibits Relevant to NYS-6/7*

Relevant to NYS-6/7, Entergy submitted thirty-five exhibits, the NRC Staff

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<sup>859</sup> Curriculum Vitae of Alan B. Cox (Ex. ENT000031).

<sup>860</sup> Curriculum Vitae of Thomas S. McCaffrey (Ex. ENT000095).

<sup>861</sup> Curriculum Vitae of Roger B. Rucker (Ex. ENT000092).

<sup>862</sup> Curriculum Vitae of Dr. Howard G. Sedding at 1 (Ex. ENT000235).

<sup>863</sup> Testimony of Entergy Witnesses Alan B. Cox, Roger B. Rucker, Thomas S. McCaffrey, and Howard G. Sedding Concerning Contentions NYS-6/NYS-7 (Non-EQ Inaccessible Medium- and Low-Voltage Cables) (Sept. 21, 2012) (Ex. ENTR00233) [hereinafter Entergy NYS-6/7 Testimony].

<sup>864</sup> Tr. at 1269 (Judge McDade).

<sup>865</sup> Statement of Professional Qualifications of Clifford K. Doutt (Ex. NRC000078).

<sup>866</sup> Statement of Professional Qualifications of Duc T. Nguyen (Ex. NRC000079).

<sup>867</sup> NRC Staff Testimony of Cliff Doutt and Duc Nguyen Concerning NYS Contention 6 and 7 (Lack of a Specific Plan for the Aging Management of Non-Environmentally-Qualified Inaccessible Medium and Low-Voltage Cables and Wiring (Mar. 30, 2012) (Ex. NRC000077) [hereinafter NRC Staff NYS-6/7 Testimony].

<sup>868</sup> Tr. at 1269 (Judge McDade).

<sup>869</sup> Biography of Earle C. (Rusty) Bascom, III — Principal Engineer (Ex. NYS000137).

<sup>870</sup> Prefiled Written Testimony of Earle C. Bascom III Regarding Contentions NYS-6 and 7 (Dec. 14, 2011) (Ex. NYS000136) [hereinafter New York NYS-6/7 Testimony].

<sup>871</sup> Pre-Filed Written Rebuttal Testimony of Earle C. Bascom III Regarding Contentions NYS-6 and NYS-7 (June 27, 2012) (Ex. NYS000411) [hereinafter New York NYS-6/7 Rebuttal Testimony].

<sup>872</sup> Tr. at 1269 (Judge McDade).

submitted four exhibits, and New York submitted thirty-one exhibits.<sup>873</sup> The exhibits were admitted into the record on October 15, 2012.<sup>874</sup>

c. *Relevant NRC Staff Guidance Documents and Corporate Procedures*

1. NUREG-1800, Rev. 1, “Standard Review Plan for Review of License Renewal Application for Nuclear Power Plants” (Sept. 2005) (SRP-LR) (Ex. NYS00161). A description of this document was provided at page 292, above, as it also pertains to RK-TC-2.

2. NUREG-1801, Rev. 1, “Generic Aging Lessons Learned (GALL) Report” (Sept. 2005) (GALL-1) (Exs. NYS00146A-C). A description of this document was provided at page 292, above, as it also pertains to RK-TC-2.

3. NUREG-1801, Rev. 2, “Generic Aging Lessons Learned (GALL) Report” (Dec. 2010) (GALL-2) (Exs. NYS00147A-D). A description of this document was provided at page 292, above, as it also pertains to RK-TC-2.

4. NUREG/CR-7000, BNL-NUREG-90318-2009, “Essential Elements of an Electric Cable Condition Monitoring Program” (Ex. NYS000148). NUREG/CR-7000 presents the results of research into various aging mechanisms and condition monitoring techniques in order to define the elements of an effective monitoring program for electric cables.<sup>875</sup> The report provides the technical basis for the Staff to use in developing regulatory guidance.<sup>876</sup>

5. EN-DC-346, Cable Reliability Program, Rev. 3 (Apr. 30, 2012) (Ex. ENT000583). EN-DC-346 is a corporate fleet-wide procedure related to Entergy’s non-EQ inaccessible cable program.<sup>877</sup> Entergy procedure EN-DC-346 provides guidance for monitoring the insulation condition of underground power cables, as well as for inspection and dewatering of manholes.<sup>878</sup> EN-DC-346 provides testing and inspection methodology for implementing Entergy’s cable monitoring program.<sup>879</sup>

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<sup>873</sup> See Appendix B of Partial Initial Decision.

<sup>874</sup> Tr. at 1269 (Judge McDade).

<sup>875</sup> RES, NRC, Essential Elements of an Electric Cable Condition Monitoring Program, NUREG/CR-7000, BNL-NUREG-90318-2009 (Jan. 2010), at v (Ex. NYS000148) [hereinafter NUREG/CR-7000].

<sup>876</sup> Id.

<sup>877</sup> See EN-DC-346, Rev. 3, Cable Reliability Program (Apr. 30, 2012) (Ex. ENT000583) [hereinafter EN-DC-346].

<sup>878</sup> Id. at 4.

<sup>879</sup> See id. at 18-23.

## C. Factual Information Related to NYS-6/7

### 1. Non-Environmentally Qualified Cables

The AMP at issue in this contention concerns inaccessible power cables that are not required to meet the environmental qualification standards of 10 C.F.R. § 50.49 (i.e., non-EQ cables).<sup>880</sup> Cables subject to the environmental qualification standards of 10 C.F.R. § 50.49 are cables that are important to the safety of a nuclear power plant and are required to function during an accident when exposed to harsh environmental conditions.<sup>881</sup> Non-EQ cables, by contrast, are either “not needed to mitigate the consequences of the accident or they’re not going to be exposed to the environment of an accident.”<sup>882</sup> The principal aging mechanism for a non-EQ cable is degradation of the cable insulation due to exposure to moisture.<sup>883</sup>

This contention concerns only inaccessible cables, i.e., those that are buried underground or encased in cable conduits.<sup>884</sup> Because of their location, these cables cannot be visually inspected for aging-related degradation.<sup>885</sup> The terminals, or end points, of the cables are, however, accessible and the testing procedures described below are performed on the cable terminals.

### 2. Entergy’s Aging Management Program for Non-Environmentally Qualified Inaccessible Power Cables

In this section, we describe Entergy’s AMP and the Staff’s review process.

#### a. License Renewal Application

As submitted on April 23, 2007, Entergy’s LRA contains an AMP for non-EQ inaccessible medium-voltage cables.<sup>886</sup> In Appendix A, which provides a

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<sup>880</sup> Tr. at 3992 (Mr. Rucker for Entergy). EQ cable is defined in 10 C.F.R. § 50.49. Cable that does not meet the definition of EQ cable is, by default, non-EQ cable.

<sup>881</sup> See generally 10 C.F.R. § 50.49.

<sup>882</sup> Tr. at 3993 (Mr. Rucker for Entergy).

<sup>883</sup> See Entergy NYS-6/7 Testimony at 25-26 (Ex. ENTR00233). See also NRC Generic Letter 2007-01: Inaccessible or Underground Power Cable Failures That Disable Accident Mitigation Systems or Cause Plant Transients (Feb. 2007) at 1-2 (Ex. NYS000149).

<sup>884</sup> Entergy NYS-6/7 Testimony at 19 (Ex. ENTR00233).

<sup>885</sup> Id. at 30.

<sup>886</sup> License Renewal Application at B-81 to -82 (Ex. ENT00015B). Although, as described below, Entergy has since modified the program to include low-voltage cables, the name of the program has remained unchanged.

supplement to the UFSAR, Entergy includes a cursory description of the IP2 and IP3 AMPs for non-EQ inaccessible medium-voltage cables:

The Non-EQ Inaccessible Medium-Voltage Cable Program is a new program that entails periodic inspections for water collection in cable manholes and periodic testing of cables. In scope medium-voltage cables (cables with operating voltage from 2 kV to 35 kV) exposed to significant moisture and voltage will be tested at least once every ten years to provide an indication of the condition of the conductor insulation. The program includes inspections for water accumulation in manholes at least once every two years.

The Non-EQ Inaccessible Medium-Voltage Cable Program will be implemented prior to the period of extended operation.<sup>887</sup>

Appendix B of the LRA describes the program in slightly more detail. Section B.1.23 repeats the program description and also states that “[i]ndustry and plant-specific operating experience will be considered when implementing this program.”<sup>888</sup> Lacking other significant detail, the program simply states that it “will be consistent with the program attributes described in NUREG-1801, Section XI.E3, Inaccessible Medium-Voltage Cables Not Subject to 10 C.F.R. § 50.49 Environmental Qualification Requirements.”<sup>889</sup> The program takes no exception from any of the attributes outlined in GALL.<sup>890</sup>

*b. Subsequent Amendments and Submittals*

In February 2011, following the release of GALL-2 (Dec. 2010), the NRC Staff submitted several RAIs to Entergy concerning the Non-EQ Inaccessible Medium-Voltage Cable Program.<sup>891</sup> The NRC Staff alerted Entergy to recent industry developments that in the presence of significant moisture, inaccessible low-voltage power cables (480 V to 2 kV) had experienced age-related degradation. The Staff also recommended that cable test frequencies be increased to every 6 years (rather than 10 years) and cable manholes should be subject to an annual water accumulation inspection.<sup>892</sup>

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<sup>887</sup> *Id.* at A-28, A-55.

<sup>888</sup> *Id.* at B-83.

<sup>889</sup> *Id.*

<sup>890</sup> *Id.* The NRC Staff reviewed Entergy’s LRA for consistency with GALL-1. NRC Staff NYS-6/7 Testimony at 5-6 (Ex. NRC000077).

<sup>891</sup> See Letter from Kimberly J. Green, Safety Project Manager, NRC, to Vice President, Operations, Entergy (Feb. 10, 2011) (Ex. NYS000150).

<sup>892</sup> *Id.* Encl. at 5.

In March 2011, Entergy responded to these RAIs by providing substantial additional detail about its non-EQ inaccessible cable program, and agreeing to certain enhancements to the program as described in the original LRA.<sup>893</sup> In its response, Entergy specifically stated that “Indian Point will include low-voltage power cables in the non-EQ inaccessible medium-voltage cable program, will increase cable testing and manhole inspection frequency, and will provide for manhole inspections after events that could cause flooding of inaccessible cable raceways.”<sup>894</sup> Entergy incorporated these changes in its revised Sections A.2.1.22 and B.1.23 of its LRA.<sup>895</sup> In addition, Entergy included “Commitment 15,” which expanded its previous medium-voltage cable program to include IP2 and IP3 low-voltage cables.<sup>896</sup> On July 14, 2011, Entergy applied the same change to LRA § A.3.1.22, increasing inspection frequencies and adding low-voltage cables to the IP3 program.<sup>897</sup>

On July 27, 2011, Entergy again revised LRA §§ A.2.1.22 and A.3.1.22, adding provisions specifying manhole inspections at least annually, and indicating that a more frequent inspection schedule might be established based on plant-specific operating experience with cable wetting or submergence in manholes.<sup>898</sup> On August 9, 2011, Entergy revised those sections once more to specify that, in addition to the annual inspections, “manhole inspection for water after events, such as heavy rain or flooding will be performed.”<sup>899</sup> In addition, Entergy revised LRA § B.1.23 to incorporate event-driven manhole inspections.<sup>900</sup> Mr. Cox testified for Entergy that these RAI response letters listing modifications to its AMP are incorporated into the LRA’s program descriptions.<sup>901</sup>

In sum, Entergy’s current Non-EQ Inaccessible Medium-Voltage Cable Pro-

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<sup>893</sup> NL-11-032, Letter from Fred Dacimo, Entergy, to NRC Document Control Desk, Response to Request for Additional Information (RAI), Attach. 1 at 10 (Mar. 28, 2011) (Ex. NYS000151).

<sup>894</sup> *Id.* at 11.

<sup>895</sup> *Id.* at 12-13.

<sup>896</sup> *Id.* at 13. Commitment 15 states that Entergy will “Implement the Non-EQ Inaccessible Medium-Voltage Cable Program for IP2 and IP3 as described in LRA Section B.1.23.” *Id.*

<sup>897</sup> NL-11-074, Letter from Fred Dacimo, Entergy, to NRC Document Control Desk, Response to Request for Additional Information (RAI), Attach. 1 at 15 (July 14, 2011) (Ex. NYS000152).

<sup>898</sup> NL-11-090, Letter from Fred Dacimo, Entergy, to NRC Document Control Desk, Response to Request for Additional Information (RAI), Attach. 1 at 1-2 (July 27, 2011) (Ex. NYS000153).

<sup>899</sup> NL-11-096, Letter from Fred Dacimo, Entergy, to NRC Document Control Desk, Response to Request for Additional Information (RAI), Attach. 1 at 2-3 (July 27, 2011) (Ex. NYS000154) [hereinafter NL-11-096].

<sup>900</sup> *Id.* These changes also mirror the requirements of GALL-2, which issued in December 2010. See GALL-2 (Ex. NYS00147D).

<sup>901</sup> Tr. at 4070-71 (Mr. Cox for Entergy); *see also* Tr. at 3997 (Mr. Rucker for Entergy) (stating that “the AMP is described in Appendix B.1.23 [of the LRA] and then as amended by the RAI letters that are cited there.”).

gram is contained in its LRA in Appendix A, §§ A.2.1.22 and A.3.1.22, and Appendix B, § B.1.23, as modified by its RAI responses in Letters NL-11-032, NL-11-074, NL-11-090, and NL-11-096. While Entergy's program references GALL-1, according to the testimony of Mr. Doutt of the NRC Staff, the Applicant had addressed the attributes of GALL-2, § XI.E3, through its RAI responses.<sup>902</sup> Entergy witness Mr. Rucker also testified that the AMP will be implemented via the fleet-wide procedure EN-DC-346.<sup>903</sup>

### **3. Required Scope of an AMP**

As discussed above, the Commission has stated that a commitment by a license renewal applicant to implement one of the AMPs detailed in GALL is sufficient to provide "reasonable assurance" that the effects of aging will be adequately managed so that intended functions will be maintained consistent with the CLB for the period of extended operations as required by 10 C.F.R. § 54.21(a)(3).<sup>904</sup> Entergy must, however, demonstrate that its program is consistent with GALL.<sup>905</sup>

The original Indian Point LRA was written using the guidance provided by GALL-1.<sup>906</sup> Section XI.E3 of GALL-1 addressed non-EQ inaccessible medium-voltage cables, defining which cables are included in the program,<sup>907</sup> the acceptable tests,<sup>908</sup> and the testing intervals.<sup>909</sup> In 2010, during the pendency of this proceeding, the NRC Staff issued GALL-2,<sup>910</sup> which made various changes to GALL-1, including (in the case of the AMP at issue in this contention) increasing the frequency of manhole inspections and expanding the scope of covered

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<sup>902</sup> Tr. at 4185-86 (Mr. Doutt for the NRC Staff).

<sup>903</sup> Tr. at 4029-30 (Mr. Rucker for Entergy).

<sup>904</sup> *Vt. Yankee*, CLI-10-17, 72 NRC at 37 (citing *Oyster Creek*, CLI-08-23, 68 NRC at 468).

<sup>905</sup> *Id.*

<sup>906</sup> License Renewal Application at B-81 to -82 (Ex. ENT00015B).

<sup>907</sup> GALL-1 at XI.E-8 (Ex. NYS00146C) (stating "[t]his program applies to inaccessible (e.g., in conduit or direct buried) medium-voltage cables within the scope of license renewal that are exposed to significant moisture simultaneously with significant voltage. Significant moisture is defined as periodic exposures to moisture that last more than a few days. . . . Periodic exposures to moisture that last less than a few days (*i.e.*, normal rain and drain) are not significant. Significant voltage exposure is defined as being subjected to system voltage for more than twenty-five percent of the time."). Medium-voltage cables are those with voltages between 2 kV and 35 kV. *Id.* at XI.E.7.

<sup>908</sup> *Id.* (stating the applicant must conduct "a proven test for detecting deterioration of the insulation system due to wetting, such as power factor, partial discharge, or polarization index, as described in EPRI TR-103834-P1-2, or other testing that is state-of-the-art at the time the test is performed.").

<sup>909</sup> *Id.* (stating that cables "that are within the scope of the program are tested at least once every 10 years. This is an adequate period to preclude failures of the conductor insulation since experience has shown that aging degradation is a slow process. A 10 year testing interval will provide two data points during a 20-year period, which can be used to characterize the degradation rate.").

<sup>910</sup> See GALL-2 (Exs. NYS00147A-D).

SSCs.<sup>911</sup> Specifically, the revised Section XI.E3 expanded the AMP for non-EQ inaccessible power cables to include low-voltage cables; increased the frequency of inspection from every 10 years to every 6 years; and increased the frequency of inspection of manholes for water collection from every 2 years to “at least annually.”<sup>912</sup>

Entergy’s AMP for inaccessible, non-EQ low- and medium-voltage power cables relies heavily on incorporation by reference of the applicable section of GALL. While such incorporation by reference is permissible, an applicant must also provide sufficient plant-specific information to demonstrate that the AMP will be designed and implemented consistent with GALL.<sup>913</sup> The Staff initially evaluated Entergy’s LRA against GALL-1, but subsequently submitted RAIs that led Entergy to adopt the broader attributes of GALL-2.<sup>914</sup> Thus, in response letter NL-11-096, Entergy provided revised LRA §§ A.2.1.22 and A.3.1.22, which state that “[t]his new program will be implemented consistent with the corresponding program described in NUREG-1801, § XI.E3, in GALL-1<sup>915</sup> and include the revised “Commitment 15,” which states that “[t]his new program will be implemented consistent with the corresponding program described” in GALL-2.<sup>916</sup>

#### **4. Staff’s Methodology for Determining Consistency with GALL**

In Section II.B, above, we outlined the general approach taken in evaluating a license renewal applicant’s AMP for consistency with GALL. Here, we discuss the application of that process relative to Entergy’s Non-EQ Inaccessible Medium-Voltage Cable Program.

The NRC Staff approved Entergy’s AMP, as modified by Entergy’s RAI responses, in the Staff’s Supplemental Safety Evaluation Report (SSER), dated August 2011,<sup>917</sup> noting that:

- (a) the applicant’s program is based on and consistent with GALL AMP XI.E3,
- (b) the program enhancements, including the incorporation of [low voltage] power cables, are consistent with industry operating experience and current staff recom-

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<sup>911</sup> Compare AMP XI.E3 in GALL-1 (Ex. NYS00146C) with AMP XI.E3 in GALL-2 (Ex. NYS-00147D).

<sup>912</sup> GALL-2 at XI.E3-2 (Ex. NYS00147D).

<sup>913</sup> *Vt. Yankee*, CLI-10-17, 72 NRC at 37.

<sup>914</sup> See Tr. at 4024 (Mr. Doutt for the NRC Staff).

<sup>915</sup> NL-11-096, Attach. 1 at 1 (Ex. NYS000154).

<sup>916</sup> *Id.*, Attach. 2 at 8.

<sup>917</sup> SSER at 3-5 to -9 (Ex. NYS000160).

mendations . . . [and (c)] the applicant has demonstrated that the effects of aging will be adequately managed . . . for the period of extended operation.<sup>918</sup>

In their testimony, Staff witnesses described the process they used for evaluating Entergy's AMPs for consistency with GALL, which can be summarized as consisting of three components: (1) reviewing the LRA document, (2) conducting an audit of the AMPs onsite, and (3) posing RAIs.<sup>919</sup>

Mr. Nguyen testified that the NRC Staff's aging management review began with the LRA itself.<sup>920</sup> He explained that the NRC Staff first reviewed the Applicant's FSAR to understand the electrical power system at the site and to identify cables that require aging management review.<sup>921</sup> The NRC Staff then compared the program description found in section B.1.23 of the LRA to the program described in GALL.<sup>922</sup>

In that regard, Mr. Nguyen indicated that he looked to see if the ten elements of the GALL AMP are represented in Entergy's program. He concluded that they were included, noting that the details of the Entergy AMP and GALL details are "exactly the same."<sup>923</sup> He also declared that the NRC Staff took into account "any operating experience the Applicant may have" to inform its judgment of the adequacy of the AMP.<sup>924</sup>

According to the testimony of the NRC Staff witnesses Mr. Doutt and Mr. Nguyen, their review was supported by multiple onsite audits. One such audit, as described by these Staff's witnesses, was a review of Entergy's "scoping and screening" process to verify that Entergy had appropriately identified the SSCs within the scope of license renewal.<sup>925</sup> The scoping and screening audit was based on GALL-1, which applied only to medium-voltage cables.<sup>926</sup> According to Mr.

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<sup>918</sup> *Id.* at 3-9.

<sup>919</sup> NRC Staff NYS-6/7 Testimony at 13-15 (Ex. NRC000077).

<sup>920</sup> Tr. at 3999-4001 (Mr. Nguyen for the NRC Staff).

<sup>921</sup> Tr. at 4001 (Mr. Nguyen for the NRC Staff).

<sup>922</sup> Tr. at 4002 (Mr. Nguyen for the NRC Staff). At that time, GALL-1, § XI.E3 only covered medium-voltage cables. *Id.*

<sup>923</sup> Tr. at 4007 (Mr. Nguyen for the NRC Staff).

<sup>924</sup> Tr. at 4002 (Mr. Nguyen for the NRC Staff).

<sup>925</sup> NRC Staff NYS-6/7 Testimony at 13 (Ex. NRC000077). Entergy has documented the low- and medium-voltage cables that are within the scope of its AMP. See IPEC Low-Voltage In-Scope Cable List (Ex. ENT000242); IPEC Medium-Voltage In-Scope Cable List (Ex. ENT000243). At the oral hearing, Mr. Bascom was asked whether he had any concerns with the lists of cables that Entergy had designated as within the scope of the AMP. He replied that he did not. Tr. at 4055-56 (Mr. Bascom for New York).

<sup>926</sup> Audit Report for Plant Aging Management Programs and Reviews: Indian Point Nuclear Generating Unit Nos. 2 and 3 at 1 (Ex. ENT000041) [hereinafter Audit Report].

Nguyen, “at that time, we did not have any reason to require them to include the low voltage cable in the scope [along with] the medium voltage.”<sup>927</sup>

NRC Staff witnesses further testified that other “AMP audits” occurred over multiple visits to the Indian Point plant site between August 2007 and February 2008.<sup>928</sup> During these visits, the Staff reviewed “applicant records supporting the applicant’s conclusion that the program elements . . . are consistent with the corresponding elements in the GALL Report AMP.”<sup>929</sup> The purpose of the site audit, in Mr. Nguyen’s words, was not to gather new information,<sup>930</sup> but “[t]o confirm that what the applicant claims in the application is actually true.”<sup>931</sup> At the AMP audits, the audit team reviewed Entergy’s internal documents relevant to its AMPs and met with Entergy representatives to review each element of the programs.<sup>932</sup>

The Staff’s findings from the onsite AMP audit are documented in its audit report,<sup>933</sup> which concluded that “the applicant’s AMP elements [for Non-EQ Inaccessible Medium-Voltage Cable] are consistent with the GALL Report AMP elements” (1) through (6).<sup>934</sup> Mr. Nguyen testified that the expansion of the program to include low-voltage cables was addressed through the RAIs mentioned above, and that “Entergy’s subsequent decision to expand the non-EQ inaccessible medium voltage cable program to include low voltage cables did not prompt the Staff to re-audit” because the Staff was satisfied with its review of Entergy’s original AMP.<sup>935</sup>

The Staff separately determined in its review of Entergy’s quality assurance (QA) program that all of Entergy’s AMPs were consistent with elements 7 through 9 of GALL AMPs.<sup>936</sup> This review was documented as part of the QA review in the SER.<sup>937</sup> The Staff also included in the SER its determination that Energy’s AMP for non-EQ inaccessible cables is consistent with element 10, the operating experience element.<sup>938</sup>

Finally, the Staff documented its evaluation in the 2011 SSER,<sup>939</sup> which

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<sup>927</sup> Tr. at 4048 (Mr. Nguyen for the NRC Staff).

<sup>928</sup> See NRC Staff NYS-6/7 Testimony at 14 (Ex. NRC000077).

<sup>929</sup> *Id.*

<sup>930</sup> Tr. at 4059-60 (Mr. Nguyen for the NRC Staff).

<sup>931</sup> Tr. at 4059 (Mr. Nguyen for the NRC Staff).

<sup>932</sup> Tr. at 4049-50 (Mr. Nguyen for the NRC Staff).

<sup>933</sup> See Audit Report (Ex. ENT000041).

<sup>934</sup> *Id.* at 26.

<sup>935</sup> NRC Staff NYS-6/7 Testimony at 15 (Ex. NRC000077).

<sup>936</sup> See *id.*

<sup>937</sup> See SER at 3-220 to -22 (Ex. NYS00326C).

<sup>938</sup> See *id.* at 3-31 to -32; see also SSER at 3-8, 3-15 to -17 (Ex. NYS000160).

<sup>939</sup> See SSER at 3-5 to -9 (Ex. NYS000160).

describes the modifications and expansions of the program made in response to the Staff's RAIs as acceptable "enhancements" that are "consistent with industry operating experience and current staff recommendations."<sup>940</sup> The SSER states the Staff's conclusion that "the applicant has demonstrated that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the period of extended operation," and that the UFSAR Supplement "provides an adequate summary description of the program, as required by 10 C.F.R. 54.21(d)."<sup>941</sup>

##### **5. Enforcement of License Commitments and Corrective Actions**

The SSER<sup>942</sup> also contains a list of Entergy commitments that will be imposed as conditions of the renewed license.<sup>943</sup> Commitment 15 states that Entergy will "implement the Non-EQ Inaccessible Medium Voltage Cable Program for IP2 and IP3 as described in LRA Section B.1.23."<sup>944</sup> This commitment further specifies that Entergy will implement the program consistent with section XI.E3 of GALL.<sup>945</sup>

Element 7 of GALL AMP XI.E3 for non-EQ inaccessible cables concerns corrective actions to be performed when the acceptance criteria for cable testing are not met. Staff witnesses Mr. Nguyen and Mr. Doutt testified that, in approving Entergy's AMP, the lack of specificity in the LRA about which tests will be performed, the acceptance criteria for those tests, and the precise corrective actions to be performed were not a matter of concern to the Staff, because the test methods to be applied do not need to be selected yet, and because Entergy has in place what it considers to be an adequate corrective action program.<sup>946</sup> These NRC Staff witnesses testified that "corrective actions are fact-dependent and not one-size-fits-all," and "no purpose would be served with requiring the LRA to include a table or list specifying all corrective actions for all conditions adverse to quality."<sup>947</sup>

These witnesses also emphasized the role of inspections and audits, both prior to and during the PEO. Prior to the PEO, the NRC Staff must conduct a

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<sup>940</sup> *Id.* at 3-7, 3-9.

<sup>941</sup> *Id.* at 3-9.

<sup>942</sup> See *id.* at A-11.

<sup>943</sup> See Tr. at 4067-68 (Mr. Doutt for the NRC Staff).

<sup>944</sup> SSER at A-11 (Ex. NYS000160).

<sup>945</sup> *Id.*

<sup>946</sup> NRC Staff NYS-6/7 Testimony at 23-25 (Ex. NRC000077).

<sup>947</sup> *Id.* at 24.

71003 audit<sup>948</sup> to verify that the applicant's procedures are sufficient to meet the commitments of the renewed license.<sup>949</sup> Thereafter, during the renewal period, the regulations of 10 C.F.R. Part 50, Appendix B concerning ongoing inspections and audits would apply.<sup>950</sup>

#### **D. Findings Relative to Non-EQ Inaccessible Power Cables**

As noted above, the Commission has stated that while an applicant may reference GALL to provide reasonable assurance the aging will be managed, the applicant must demonstrate that its AMP is consistent with GALL to support such a reference. In this section, we discuss Entergy's reference to GALL and its attempt to demonstrate GALL consistency by focusing on the three major issues raised by New York in these contentions, i.e., (1) that Entergy's AMP for non-EQ inaccessible medium- and low-voltage power cables exposed to significant moisture lacks the specificity necessary to demonstrate the effects of aging will be adequately managed for the PEO;<sup>951</sup> (2) that the AMP lacks critical information relating to corrective actions, cable testing methods and acceptance criteria, and Entergy's ability to complete cable testing before entering the PEO;<sup>952</sup> and (3) that Entergy has failed to provide an AMP for non-EQ inaccessible low- and medium-voltage power cables exposed to excessive heat.<sup>953</sup> In New York's view, without such details, Entergy's AMP is unable to provide reasonable assurance that the non-EQ, inaccessible medium- and low-voltage cables will maintain their intended functions during PEO. In addition, New York maintains that, by failing to address impacts from excessive heat on the degradation of cables, Entergy's LRA is deficient.<sup>954</sup>

##### **1. Applicant's Declaration That Its Inaccessible Non-EQ Low- and Medium-Voltage Cables and Wiring AMP Is Consistent with GALL**

Entergy states in its LRA that the Non-EQ Inaccessible Medium-Voltage Cable Program "will be consistent with the program attributes described in" section

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<sup>948</sup> As noted at page 323, above, the 71003 audit involves programmatic inspections performed by the NRC Staff. *See* NRC Inspection Manual, Inspection Procedure 71003 Post-Approval Site Inspection for License Renewal (ADAMS Accession No. ML073530536).

<sup>949</sup> Tr. at 4079 (Mr. Doutt for the NRC Staff); *see also* NRC Inspection Manual: Inspection Procedure 71003 (Feb. 2008) (ADAMS Accession No. ML073530536).

<sup>950</sup> *See generally* 10 C.F.R. Part 50, App. B.

<sup>951</sup> State of New York's Initial Statement of Position (Dec. 15, 2011) at 15 (Ex. NYS000135).

<sup>952</sup> *Id.* at 17-25.

<sup>953</sup> *Id.* at 25-28.

<sup>954</sup> *Id.* at 28.

XI.E3 of GALL-1.<sup>955</sup> Entergy included similar language as Commitment 15 in the UFSAR supplement as a binding condition of its prospective license, i.e., stating the program “will be implemented consistent with the corresponding program described in NUREG-1801, Section XI.E3.”<sup>956</sup> Entergy further declared that the Non-EQ Inaccessible Medium-Voltage Cable Program satisfies all the elements of GALL and seeks no exceptions.<sup>957</sup> Moreover, the NRC Staff subsequently issued RAIs that led Entergy to adopt the broader attributes of GALL-2, which included expanding its AMP to include non-EQ inaccessible low-voltage cables.<sup>958</sup>

As we have discussed above, the Commission has stated that an applicant’s “use of an aging management program identified in the GALL Report constitutes reasonable assurance that it will manage the targeted aging effect during the renewal period.”<sup>959</sup> We find that Entergy’s Non-EQ Inaccessible Medium-Voltage Cable Program incorporates the related AMP in section XI.E3 of GALL, and that the LRA includes a binding commitment to implement this program consistent with GALL.

## ***2. Entergy’s Demonstration of Consistency with GALL***

We do not, however, end our inquiry based on Entergy’s statement that its AMP is consistent with GALL. Rather, as the Commission has held, “referencing an AMP in the GALL Report does not insulate that program from challenge in litigation,”<sup>960</sup> in that an applicant must *demonstrate*, not merely claim, that its AMP will be consistent with GALL.<sup>961</sup> We thus turn to Entergy’s AMP to assess whether, as New York alleged, that plan lacks sufficient detail to demonstrate consistency with GALL.

### ***a. Entergy’s Implementing Procedures as the Basis for a Reasonable Assurance Finding***

New York argued that Entergy’s Non-EQ Inaccessible Medium-Voltage Cable Program, as expressed in its LRA, lacks details as to (1) the cables to be included within the scope of the program; (2) the number, location, and physical characteristics of those cables; (3) the monitoring tests that will be used; (4) the

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<sup>955</sup> License Renewal Application at B-81 (Ex. ENT00015B).

<sup>956</sup> SSER at A-12 (Ex. NYS000160).

<sup>957</sup> License Renewal Application at B-81 (Ex. ENT00015B).

<sup>958</sup> NL-11-032, Letter from Fred Dacimo, Entergy, to NRC Document Control Desk, Response to Request for Additional Information (RAI), Attach. 1 at 11 (Mar. 28, 2011) (Ex. NYS000151).

<sup>959</sup> *Vt. Yankee*, CLI-10-17, 72 NRC at 36 (quoting *Oyster Creek*, CLI-08-23, 68 NRC at 468).

<sup>960</sup> *Id.*

<sup>961</sup> *Id.* (emphasis added).

acceptance criteria for the selected monitoring tests; and (5) the corrective actions that will be taken if testing reveals degraded insulation.<sup>962</sup> New York notes that even though “all the essential details that are missing from the AMP with respect to the effects of aging caused by exposure of the cables to significant moisture” are included in the implementing procedure, Entergy’s fleet-wide Cable Reliability Program (EN-DC-346),<sup>963</sup> New York nonetheless maintains that EN-DC-346 is not part of the LRA, is not enforceable by the NRC, and therefore cannot provide the basis for a finding of reasonable assurance.<sup>964</sup> Mr. Bascom on behalf of New York expressed his concerns regarding “the link to where [EN-DC-346 is] regulated or required by the staff’s review.”<sup>965</sup>

Entergy witness Mr. Cox conceded that EN-DC-346 is an implementing procedure for its AMP, and not part of the AMP itself.<sup>966</sup> He insisted, however, that EN-DC-346 exists to effectuate the commitment made in Appendix B of the LRA.<sup>967</sup> Mr. Rucker, also testifying for Entergy, explained that EN-DC-346 is designed to be an executing or implementing procedure, and Mr. Cox and Mr. McCaffrey testified that Entergy would be required to evaluate any alterations to EN-DC-346 using its internal prescreening process to determine whether such alteration required NRC approval under 10 C.F.R. § 50.59.<sup>968</sup>

In our discussion of NYS-5 we explained that, although commitments that are not incorporated into the UFSAR Supplement are not legally binding, proposed changes to procedures that are relied upon to fulfill a binding commitment are subject to prescreening to determine whether they fall within the 10 C.F.R. § 50.59 process.<sup>969</sup> Additionally, the procedures are subject to audit by the Staff, both before and during the PEO.<sup>970</sup> Consequently, we find that a license renewal applicant may rely on such internal procedures to demonstrate that its AMPs will be implemented consistent with GALL.

As the NRC Staff witnesses testified, implementing procedures, where available, are examined as part of the AMP audit by the NRC Staff to determine

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<sup>962</sup> State of New York’s Initial Statement of Position: Contentions NYS-6 and 7 (Dec. 15, 2011) at 1 (Ex. NYS000135) [hereinafter NYS-6/7 SOP].

<sup>963</sup> State of New York’s Revised Statement of Position Regarding Contentions NYS-6 and NYS-7 (June 29, 2012) at 3 (Ex. NYS000410) (citing EN-DC-346 (Ex. ENT000583)).

<sup>964</sup> *Id.* at 2.

<sup>965</sup> Tr. at 4081 (Mr. Bascom for New York).

<sup>966</sup> Tr. at 4077 (Mr. Cox for Entergy).

<sup>967</sup> *Id.*

<sup>968</sup> Tr. at 4075 (Mr. Cox for Entergy) (stating that “[t]he procedure change process requires us to do the screening to determine if it involves an activity described in the FSAR.”); Tr. at 4082-86 (Mr. McCaffrey for Entergy).

<sup>969</sup> See *supra* pages 366-67.

<sup>970</sup> Tr. at 4079 (Mr. Doutt for the NRC Staff).

whether the applicant's AMP fulfills the ten elements of GALL.<sup>971</sup> In this case, Entergy had not finalized its procedures at the time of the audit and, therefore, the Staff did not rely on them in approving the Non-EQ Inaccessible Medium-Voltage Cable Program.<sup>972</sup> We, however, have the advantage of being able to evaluate the AMP along with the details of how it will be implemented. And, as explained below, we find they provide reasonable assurance that the effects of aging on inaccessible non-EQ medium- and low-voltage cables will be adequately managed during the PEO.

*b. Identification of In-Scope Cables*

New York argued that Entergy's LRA lacks adequate information about the cables within the scope of the AMP, including their number, location, and physical characteristics.<sup>973</sup> In his written testimony for New York, Mr. Bascom stated that, without this information, he was unable to evaluate whether Entergy can complete testing before the PEO and whether the chosen tests are suited to the types of cables.<sup>974</sup> At the hearing, however, after reviewing the lists of cables at IP2 and IP3 provided by Entergy, Mr. Bascom was unwilling to say that the lists are inadequate or, to his knowledge, that they inaccurately represent the cables at the plant.<sup>975</sup> Accordingly, based on the factors outlined below, we find that the number, location, and physical characteristics of non-EQ inaccessible cables are adequately identified.

Entergy's Non-EQ Inaccessible Medium-Voltage Cable Program identifies those cables that are covered by the program. Specifically, the program applies to “[i]n scope medium-voltage cables (cables with operating voltage from 2 kV to 35 kV) and low-voltage power cables (400 V to 2 kV) exposed to significant moisture.”<sup>976</sup> In accordance with Procedure EN-DC-346 that calls for lists of the

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<sup>971</sup> See NRC Staff NYS-6/7 Testimony at 13 (Ex. NRC000077); Tr. at 4049-50 (Mr. Nguyen for the NRC Staff).

<sup>972</sup> NRC Staff NYS-6/7 Testimony at 14-15 (Ex. NRC000077). The NRC Staff witnesses testified that “the Staff does not find it necessary for LRAs to include current finalized detailed procedures for the Staff to review and approve in light of the latitude provided for using ‘state of the art’ tests in the future.” *Id.* at 16.

<sup>973</sup> See State of New York’s Initial Statement of Position Contentions NYS-6 and 7 (Dec. 15, 2011) at 1, 19 (Ex. NYS000135).

<sup>974</sup> See New York NYS-6/7 Testimony at 25-28 (Ex. NYS000136).

<sup>975</sup> See Tr. at 4055-56 (Mr. Bascom for New York).

<sup>976</sup> NL-11-096, Attach. 1 at 2 (Ex. NYS000154).

in-scope cables,<sup>977</sup> Entergy has prepared lists that include characteristics such as the length, type of insulation, rated voltage, and whether the cables are shielded.<sup>978</sup>

Further, Entergy has committed to implement the program using proven, state-of-the-art test methods in order to assure that the method used will be appropriate to the cable tested.<sup>979</sup> Entergy's LRA also adopts a "commodity" approach, whereby the LRA does not list individual cables, but treats groups of cables with common characteristics as a single commodity, which ensures that individual cables will not be missed for testing purposes.<sup>980</sup> GALL and the SRP-LR both endorse the commodity grouping approach.<sup>981</sup>

Based on the foregoing, we find that Entergy's Non-EQ Inaccessible Medium-Voltage Cable Program, as supported by the EN-DC-346 procedure and the lists of in-scope cables, sufficiently details the cables that are subject to the program.

*c. Testing Methodology, Acceptance Criteria, and Corrective Actions*

New York argues that Entergy's Non-EQ Inaccessible Medium-Voltage Cable Program is inadequate because it "does not identify the cable condition monitoring tests that will be used, does not explain the criteria for determining whether the test results are acceptable, and does not identify what corrective actions, if any, Entergy will take if a defective cable is found."<sup>982</sup> New York witness Mr. Bascom expressed the opinion that, although EN-DC-346 contains specific testing procedures, there is no link between the program as described in the LRA and the testing procedures so as to make the procedures enforceable.<sup>983</sup> We disagree.

GALL-1, § XI.E3, incorporated into Entergy's LRA, defines the test to be performed to detect the condition of cable conductor insulation as follows:

The specific type of test performed will be determined prior to the initial test, and is to be a proven test for detecting deterioration of the insulation system due to wetting, such as power factor, partial discharge, or polarization index, as described

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<sup>977</sup> EN-DC-346 at 18 (Ex. ENT000583).

<sup>978</sup> See IPEC Low-Voltage In-Scope Cable List (Ex. ENT000242); IPEC Medium-Voltage In-Scope Cable List (Ex. ENT000243).

<sup>979</sup> See Entergy NYS-6/7 Testimony at 17-23 (Ex. ENTR00233).

<sup>980</sup> *Id.* at 20. Specifically, the LRA treats "inaccessible medium-voltage (2 kV to 35 kV) cables (e.g., installed underground in conduit or direct buried) not subject to 10 C.F.R. § 50.49 EQ requirements" as a single commodity group. License Renewal Application at 2.5-2 (Ex. ENT00015A).

<sup>981</sup> See *id.* at 21 (citing GALL-2 at VI.A-1 (Ex. NYS00147D)); SRP-LR at 2.1-14 (Ex. NYS000161).

<sup>982</sup> State of New York's Initial Statement of Position Contentions NYS-6 and 7 (Dec. 15, 2011) at 1 (Ex. NYS000135).

<sup>983</sup> Tr. at 4072-73 (Mr. Bascom for New York).

in EPRI TR-103834-P1-2 or other testing that is state-of-the-art at the time the test is performed.<sup>984</sup>

Thus, if testing indicates a cable is operating below the acceptance criteria, Entergy must take corrective actions and determine the cause of the degraded condition.<sup>985</sup> And in this regard, Entergy witness Mr. McCaffrey testified that “with the acceptance criteria we have spelled out and the trending we will do, we [Entergy] will be able to detect and determine when those cables would fail prior to their failure, based upon our test data.”<sup>986</sup>

Mr. Cox acknowledged that Entergy has not indicated in its LRA the specific tests that it will perform in the PEO.<sup>987</sup> Asked whether there was any technical reason why Entergy could not have stated in its LRA which test method it plans to use, Mr. Cox answered that “the technical reason is that the GALL Report says we’ll select a test method at the time of the first test that’s the state-of-the-art.”<sup>988</sup> He further explained that Entergy does not know now what the state of the art will be 5 or 10 years from now when the test will be performed.<sup>989</sup>

Staff witness Mr. Nguyen testified that the reason for not requiring an applicant to state a specific test in the LRA is that “we don’t want to tie down [the Applicant to] a particular test. We just give the example of ‘[t]his is one of the acceptable tests.’ But in the future if something is coming up the Applicant could have options to adapt.”<sup>990</sup>

Mr. Cox also testified that the Non-EQ Inaccessible Medium-Voltage Cable Program is “not as specific” as other programs with respect to testing procedures because the issue of how best to test cable insulation for aging effects such as water treeing<sup>991</sup> is an evolving one, and “there’s a lot of research being done on

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<sup>984</sup> GALL-1 at XIE-7 (Ex. NYS00146C). The referenced EPRI document provides technical descriptions of several test methods for evaluating the condition of insulation for medium- and low-voltage cables. *See* EPRI, Effects of Moisture on the Life of Power Plant Cables, EPRI TR-103834-P1-2 (Aug. 1994). Although the document was discussed at the hearing, no party submitted it as an exhibit. We take official notice of its contents. *See* 10 C.F.R. § 2.337(f).

<sup>985</sup> Tr. at 4136-37 (Mr. McCaffrey for Entergy).

<sup>986</sup> Tr. at 4138 (Mr. McCaffrey for Entergy).

<sup>987</sup> Tr. at 4018-19 (Mr. Cox for Entergy).

<sup>988</sup> Tr. at 4009 (Mr. Cox for Entergy).

<sup>989</sup> Tr. at 4010 (Mr. Cox for Entergy).

<sup>990</sup> Tr. at 4014 (Mr. Nguyen for the NRC Staff).

<sup>991</sup> Water trees are formed in the presence of voltage and water. Under these conditions, the cables can develop channels through the insulation. Then, an event called partial discharge can develop, in which there are localized electrical discharges in the insulation that over time carbonize the water channels and form water trees. They are called water trees because they look somewhat like the trees you would see in the environment. When the water trees form, the dielectric strength of the insulation

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what is the best method.”<sup>992</sup> In Mr. Cox’s view, because the menu of test options described by GALL AMP are all acceptable methods, specifying which tests will be used would not provide additional assurance.<sup>993</sup> Based on the foregoing, we agree, and find Entergy’s explanation to be reasonable and consistent with GALL.

The witnesses for Entergy and the NRC Staff further testified that, in their judgment, sufficient oversight will exist to ensure that Entergy uses a test that meets the criteria of the GALL AMP. Entergy witness Mr. Cox stated that “[i]f we’re not using a proven test, that’s going to be apparent and [the NRC Staff is] going to be able to enforce this as a violation on us for not meeting this commitment.”<sup>994</sup> According to Mr. Cox, “[w]e would do the testing and the NRC would be in a position to review that after the fact.”<sup>995</sup> He also declared that, although Entergy can change from one “proven test” to another without prior NRC approval, Entergy would need to follow its 10 C.F.R. § 50.59 process “to ensure it doesn’t affect the safety of the plant.”<sup>996</sup>

The NRC Staff also will have oversight of Entergy’s test selection. Staff witness Mr. Nguyen testified that the NRC Staff will “do the 71003 inspection for license renewal before the PEO . . . [and] if the test is not appropriate, then we will resolve [it] at that time.”<sup>997</sup> Similarly, NRC Staff witness Mr. Doutt stated that the “inspection would look to see if the commitments, whatever they are, have been implemented correctly.”<sup>998</sup> We find this approach to be reasonable and appropriate.

Although the witnesses for Entergy and the NRC Staff testified that the Applicant need not select test methods at the application stage, EN-DC-346 does indicate the specific methods to be used. For condition monitoring of medium-voltage cables, the procedures specify Tan Delta, Very Low Frequency (VLF) AC High Potential (Hi-Pot/Withstand), or Partial Discharge testing.<sup>999</sup>

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is more significantly compromised, and to an extent, the water tree can bridge the gap between the conductor and the surrounding shield or sheath, and eventually lead to a breakdown of the insulation, which is a failure. Tr. at 4171-72 (Mr. Bascom for New York).

<sup>992</sup> Tr. at 4034 (Mr. Cox for Entergy).

<sup>993</sup> Tr. at 4035 (Mr. Cox for Entergy).

<sup>994</sup> Tr. at 4028 (Mr. Cox for Entergy).

<sup>995</sup> Tr. at 4020 (Mr. Cox for Entergy).

<sup>996</sup> Tr. at 4076 (Mr. Cox for Entergy).

<sup>997</sup> Tr. at 4014-15 (Mr. Nguyen for the NRC Staff).

<sup>998</sup> Tr. at 4023 (Mr. Doutt for the NRC Staff); *see also* Audit Report at 23 (Ex. ENT000041) (“In accordance with IP 71003, the staff will verify that the license renewal commitments are implemented in accordance with 10 C.F.R. Part 54.”).

<sup>999</sup> EN-DC-436 at 16-17 (Ex. ENT000583). According to Entergy witnesses, the Tan Delta Test, also called Power Factor, Dissipation Factor, or Loss Angle, determines the ratio by which leaking current through the cable’s insulation diverges from what would be expected of a perfectly insulated

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New York witness Mr. Bascom stated that the EPRI document referenced in GALL “did have a comprehensive description of the [test] methods that would be applied.”<sup>1000</sup> Although Mr. Bascom’s initial review of the LRA did not include the EN-DC-346,<sup>1001</sup> he testified at the hearing that “the Cable Reliability Program [EN-DC-346] that’s been referenced does designate tests that [Entergy] would [conduct] on the two types of cables that are the subject of this discussion.”<sup>1002</sup> In short, EN-DC-346 contains the specific details that Mr. Bascom testified that he was looking for in the LRA.<sup>1003</sup>

We find that Entergy’s testing methods and procedures provide sufficient detail to demonstrate that it will conduct its cable testing consistent with GALL. Procedure EN-DC-346 clearly identifies the tests that will be used and their acceptance criteria. Moreover, if a different state-of-the-art test is developed prior to the time of the actual testing, the program allows Entergy the flexibility to use the state-of-the-art test, subject to a prescreening for whether NRC approval is required pursuant to 10 C.F.R. § 50.59.

New York’s argument that Entergy’s testing procedures should essentially be set in stone in the LRA and only modifiable through the license amendment process is directly at odds with the flexibility GALL envisions. In the context of this contention, in which New York has challenged Entergy LRA’s implementation of GALL (rather than the GALL itself) and because Entergy’s AMP is within the letter and the spirit of GALL (which the Commission has indicated is the guidepost against which we should measure “reasonable assurance”), we find that New York’s arguments must fail.

We emphasize, however, that if Entergy diverges from or alters EN-DC-346, and elects a test other than one of those listed in GALL or EPRI TR-103834-P1-2,

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cable (an ideal capacitor). Entergy NYS-6/7 Testimony at 67 (Ex. ENTR00233). They testified that for the VLF AC Hi-Pot Test, the cable is taken offline to determine whether it can withstand an excessive voltage (“high potential” or “hi-pot”) that might occur during plant operation. *Id.* at 65, 67. Entergy witnesses testified that “[p]assing a withstand test after a successful tan delta test indicates that there is no significant distributed or local degradation in the insulation system.” *Id.* at 66. Entergy’s witnesses also testified that the Partial Discharge Test is used to detect the size and location of discharges through the insulation by measuring the time lapse between frequency disturbances or pulses that move along the length of the cable. *Id.* at 67. In addition, they explained that the Insulation Resistance Test is performed to evaluate the condition of the load connected to the cable. According to Entergy’s witnesses, the test identifies reasonably gross damage, contamination, or deterioration. *Id.* at 70-71; EN-DC-436 at 17 (Ex. ENT000583). Procedure EN-DC-346 also includes acceptance criteria for the tan delta and insulation resistance tests. EN-DC-346 at 25-27 (Ex. ENT000583). Mr. Rucker also indicated that, while EN-DC-346 does not bind Entergy to using a particular test, it states the preferred testing procedure. Tr. at 4037 (Mr. Rucker for Entergy).

<sup>1000</sup> Tr. at 4013 (Mr. Bascom for New York).

<sup>1001</sup> Tr. at 4039 (Mr. Bascom for New York).

<sup>1002</sup> Tr. at 4038 (Mr. Bascom for New York).

<sup>1003</sup> *Id.*

two criteria must be met: (1) the test must be “proven,” and (2) it must be “state-of-the-art.” As explained above, we cannot rule in 2013 what will be the state of the art throughout the PEO. As part of its ongoing oversight of IPEC operations, the NRC Staff must make that determination at the appropriate time.

*d. Program Enhancements*

Beginning at page 378, above, we described the modifications to the Non-EQ Inaccessible Medium-Voltage Cable Program that Entergy made in response to the Staff’s RAIs. Staff witness Mr. Doutt testified that the RAIs were driven by new operating experience and GALL-2.<sup>1004</sup> The relevant AMP in GALL-2 was, in turn, informed by industry responses to Generic Letter 2007-01,<sup>1005</sup> which had sought information from reactor licensees regarding their monitoring of inaccessible cables in light of reported cable failures.<sup>1006</sup>

Staff witness Mr. Nguyen likewise testified that the request for Entergy to expand the program to include low-voltage cables was a direct result of the issuance of GALL-2.<sup>1007</sup> Mr. Doutt for the Staff added that the increased cable testing frequency in GALL-2 was designed in part to increase the number of tests that occur in the renewal period so that the results could be trended.<sup>1008</sup> With respect to manholes, Entergy witnesses Mr. Rucker and Mr. McCaffrey testified that the current inspection frequency at Indian Point is greater than the annual inspections called for by GALL-2.<sup>1009</sup>

We find that Entergy’s Non-EQ Inaccessible Medium-Voltage Cable Program, as enhanced in response to the Staff’s RAIs, goes beyond the attributes of GALL-1 to incorporate the key changes reflected in GALL-2, including expansion of the program to include non-EQ inaccessible low-voltage cables. We also find that the modification to IPEC’s AMP for inaccessible non-EQ low- and medium-voltage cables provides reasonable assurance that the effects of aging on these components will be adequately managed during a PEO.

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<sup>1004</sup> Tr. at 4185-86 (Mr. Doutt for the NRC Staff).

<sup>1005</sup> NRC Generic Letter 2007-01, Inaccessible or Underground Power Cable Failures That Disable Accident Mitigation Systems or Cause Plant Transients (Feb. 7, 2007) (Ex. NYS000149).

<sup>1006</sup> See Tr. at 4088 (Mr. Doutt for the NRC Staff).

<sup>1007</sup> Tr. at 4048 (Mr. Nguyen for the NRC Staff).

<sup>1008</sup> Tr. at 4088 (Mr. Doutt for the NRC Staff).

<sup>1009</sup> Tr. at 4092 (Mr. McCaffrey for Entergy); Tr. at 4093 (Mr. Rucker for Entergy) (referencing Manhole Preventive Maintenance Frequencies (Ex. ENT000248)).

*e. Conclusions Relating to Entergy's Demonstration of Consistency with GALL*

As described above, Entergy has committed to implementing its Non-EQ Inaccessible Medium-Voltage Cable Program in accordance with GALL-1. It has also extended the original AMP to low-voltage cables and increased the testing frequency in accordance with the stricter attributes of GALL-2. The AMP is also supported by a fleet-wide procedure that specifies which tests will be applied to which cables, and the criteria for evaluating the results of the testing. Further, changes to Entergy's testing program will be subject to ongoing oversight by the NRC Staff. Accordingly, as based on a preponderance of the evidence before us, we find that Entergy has demonstrated that its program is consistent with the elements of GALL, and thus provides reasonable assurance that the effects of aging of inaccessible non-EQ cables that may be exposed to moisture will be effectively managed during the PEO.

**3. *The Need for an AMP for Non-EQ Inaccessible Low- and Medium-Voltage Power Cables Exposed to Excessive Heat***

In addition to the foregoing, NYS-6/7 also alleges that Entergy's LRA does not contain an AMP for non-EQ inaccessible low- and medium-voltage power cables exposed to excessive heat.<sup>1010</sup> As explained below, based on the evidentiary record before us, we find that the testing to be conducted pursuant to Entergy's Non-EQ Inaccessible Medium-Voltage Cable Program is adequate to detect degradation due to excessive heating in advance of cable failure.

*a. Thermal Degradation of Power Cables*

New York witness Mr. Bascom testified that many cable failures occur "from the slow degradation of the cable insulation due to . . . exposure to excessive heat."<sup>1011</sup> According to Mr. Bascom, "thermally induced cable degradation occurs when a power cable is operated above its rated temperature and the insulation melts or burns causing the insulation's dielectric strength, that is, its voltage insulating properties, to degrade to the point of an electrical breakdown."<sup>1012</sup>

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<sup>1010</sup> See State of New York's Initial Statement of Position Contentions NYS-6 and 7 (Dec. 15, 2011) at 25-28 (Ex. NYS000135). Because NYS-6/7 as admitted challenged the adequacy of Entergy's AMP for non-EQ low- and medium-voltage cables, we interpret New York's argument on this issue as a challenge to the adequacy of Entergy's Non-EQ Inaccessible Medium Voltage Cable Program, rather than a demand for a new, separate AMP.

<sup>1011</sup> New York NYS-6/7 Testimony at 13 (Ex. NYS000136).

<sup>1012</sup> *Id.* at 29.

Mr. Bascom identified three mechanisms that could cause excessive heating of the cable insulation: (1) failure of the surrounding environment to dissipate the heat generated by current passing through the cable; (2) an external heat source near the cable, such as a steam line or hot water pipe; and (3) heat from other cables in close proximity, particularly in underground conduits, causing a mutual heating effect.<sup>1013</sup> NRC Staff witnesses testified that NRC's research "has not shown the three issues discussed by Mr. Bascom to be a concern at operating plants."<sup>1014</sup> The NRC Staff witnesses opined that previous cable failures at Indian Point were not caused by excessive heat.<sup>1015</sup>

The first mechanism described by Mr. Bascom is also referred to as "ohmic heating."<sup>1016</sup> He testified that losses of heat (ohmic losses) from the cables themselves can generate elevated temperatures when the heat leaving the cables passes through a surrounding environment with high thermal resistance.<sup>1017</sup> Mr. Bascom explained that ohmic losses occur in any power cable carrying electrical current, "whether it's operating above or below its temperature limits."<sup>1018</sup>

Mr. Bascom asserted that Entergy failed to demonstrate that none of its inaccessible cables is ever operated above their rated temperatures.<sup>1019</sup> He then went on to say that he found nothing in the LRA to indicate that thermal degradation would not be an issue at Indian Point.<sup>1020</sup> In his opinion, "[b]ecause all the safety-related power cables at IP 2 and 3 are low-voltage," the lack of an AMP calls into question how these "safety-related low-voltage power cables will continue to perform their critical function" during the PEO.<sup>1021</sup> Consequently, Mr. Bascom testified that it would be "worthwhile" for Entergy to "evaluate that there are no hot spots or at least review loading that may have changed over the life of the system that might increase ohmic losses or additional cables being installed in parallel that provide mutual heating that could contribute to elevated temperature."<sup>1022</sup>

On behalf of New York, Mr. Bascom also testified that "the likelihood of excessive ohmic heating from a single cable can be minimized if the cable is properly designed and properly installed."<sup>1023</sup> In his opinion, insulation degradation

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<sup>1013</sup> *Id.* at 30.

<sup>1014</sup> NRC Staff NYS-6/7 Testimony at 26 (Ex. NRC000077).

<sup>1015</sup> *Id.*

<sup>1016</sup> Tr. at 4106 (Mr. Bascom for New York).

<sup>1017</sup> *Id.*

<sup>1018</sup> Tr. at 4183 (Mr. Bascom for New York).

<sup>1019</sup> New York NYS-6/7 Testimony at 32 (Ex. NYS000136).

<sup>1020</sup> Tr. at 4097, 4099 (Mr. Bascom for New York).

<sup>1021</sup> New York NYS-6/7 Testimony at 32 (Ex. NYS000136).

<sup>1022</sup> Tr. at 4140-41 (Mr. Bascom for New York).

<sup>1023</sup> New York NYS-6/7 Rebuttal Testimony at 5 (Ex. NYS000411).

may occur “if a cable experiences excessive temperatures due to ohmic heating because it has not been properly designed or installed.”<sup>1024</sup>

Mr. Bascom conceded, however, that temperatures far above the rated limit for cables are unlikely to be a problem at Indian Point: “[s]ince these cables have been in service for some time, that type of [high temperature] condition probably would have identified itself already by the presence of cable failures.”<sup>1025</sup> He testified that his concern, instead, is with accelerated aging brought on by long-term exposure to small increases in temperature.<sup>1026</sup>

*b. Ohmic Heating as Addressed Through Proper Design*

Entergy witnesses testified that ohmic heating is not an aging management issue, but instead an issue considered during facility design.<sup>1027</sup> Under this view, aging management is not necessary because, in a properly designed plant, cable failures due to thermal stress and decay would not occur, regardless of the age of the cables. Entergy witness Mr. McCaffrey testified that “the plant was designed to take these design thermal issues into account” with respect to potential heating of the cables.<sup>1028</sup> He further stated that he has reviewed calculations prepared for the design of the plant that accounted for soil temperatures and ampacity<sup>1029</sup> and that such calculations were performed in accordance with an engineering standard for insulated cables.<sup>1030</sup> According to another Entergy witness, Dr. Sedding, “the design assumptions in . . . nuclear utilities are very conservative. So therefore, the probability of any cable system . . . being at or close to the maximum operating temperatures . . . is extremely small.”<sup>1031</sup> Dr. Sedding stated that the design criteria for nuclear plants seek to ensure that cables will operate well below their maximum operating temperature during normal operation.<sup>1032</sup> Further, Dr. Sedding and Mr. Rucker testified that the cables at Indian Point “have extruded polymer insulation that cannot lose their insulating or cooling values due to failure of an active system.”<sup>1033</sup>

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<sup>1024</sup> *Id.*

<sup>1025</sup> Tr. at 4111 (Mr. Bascom for New York).

<sup>1026</sup> *Id.*

<sup>1027</sup> Tr. at 4119 (Mr. McCaffrey and Dr. Sedding for Entergy).

<sup>1028</sup> Tr. at 4104 (Mr. McCaffrey for Entergy).

<sup>1029</sup> As explained by Staff witness Mr. Nguyen, “ampacity is the capacity of the cable to carry the current” while remaining within its rated temperature. Tr. at 4147 (Mr. Nguyen for the NRC Staff).

<sup>1030</sup> Tr. at 4108 (Mr. McCaffrey for Entergy).

<sup>1031</sup> Tr. at 4131-32 (Dr. Sedding for Entergy).

<sup>1032</sup> *Id.*

<sup>1033</sup> Entergy NYS-6/7 Testimony at 77 (Ex. ENTR00233).

Staff witness Mr. Nguyen also testified that the cable system at Indian Point, if designed correctly, would preclude thermal degradation, because “the ampacity of the cables will be calculated such that the cable will never exceed the rated temperature.”<sup>1034</sup> He further testified that the design applies an “ampacity corrective factor” to take into account for such elements as the number of cables inside a conduit and the ambient temperature.<sup>1035</sup> He stated that during regular operations, the cable will not operate at the full current for much of the time, reflecting the conservative nature of the design.<sup>1036</sup> Furthermore, according to Mr. Nguyen, were Entergy to change the loading, it would need to determine whether the cable could handle the ampacity based on the design calculations.<sup>1037</sup> In short, it is Mr. Nguyen’s opinion that Indian Point is designed such that the current carried through non-EQ power cables during normal operations will not cause them to exceed their rated temperature, whether the cables are isolated or bundled together. He further testified that the only aging effect identified for underground cables is “water tree submersion,” and that thermal impacts from localized heat sources only occur in aboveground cables, which are managed by Entergy’s separate AMP for non-EQ cables exposed to adverse localized environments.<sup>1038</sup> This testimony was not contradicted by Mr. Bascom, New York’s witness for NYS-6/7.

Entergy witness Mr. McCaffrey also expressed confidence that “if we did our initial design correctly . . . there are no ohmic heating issues that are going to drive aging of our cables” over the life of the plant.<sup>1039</sup> Further, he testified that, the site drawings indicate that there are no external sources of heat at Indian Point affecting the underground cables; “[s]o the only potential source of heat would be [the] cables themselves.”<sup>1040</sup> Mr. McCaffrey also testified that he is unable to foresee a situation in which a cable that had performed properly in the initial license term would fail during the PEO due to ohmic heating.<sup>1041</sup>

Nonetheless, in an apparent attempt to demonstrate that plant design would not address this issue, New York witness Mr. Bascom pointed to a single example of a cable failure due to thermal degradation from ohmic heating.<sup>1042</sup> But that incident

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<sup>1034</sup> Tr. at 4148 (Mr. Nguyen for the NRC Staff).

<sup>1035</sup> *Id.*

<sup>1036</sup> Tr. at 4150 (Mr. Nguyen for the NRC Staff).

<sup>1037</sup> *Id.*

<sup>1038</sup> Tr. at 4151-52 (Mr. Nguyen for the NRC Staff); *see also* License Renewal Application at B-85 to -86 (Ex. ENT00015B).

<sup>1039</sup> Tr. at 4126 (Mr. McCaffrey for Entergy).

<sup>1040</sup> Tr. at 4105 (Mr. McCaffrey for Entergy).

<sup>1041</sup> Tr. at 4136 (Mr. McCaffrey for Entergy).

<sup>1042</sup> Report of Earle C. Bascom III, P.E. in Support of Contentions NYS-6 and 7 (Dec. 15, 2011) at 27 (Ex. NYS000138); Tr. at 4159-60 (Mr. Bascom for New York).

did not occur in a nuclear power plant and involved higher voltage cables.<sup>1043</sup> Mr. Bascom, while conceding that this single example “is not representative of the cables that are in Indian Point 2 and 3,”<sup>1044</sup> nonetheless asserted that it serves as an example of where, “after the initial design conditions were configured, there was a period where [the cable system] operated successfully and then it did fail” due to ohmic heating from prolonged exposure to excessive loads.<sup>1045</sup>

Entergy witness Dr. Sedding testified that, in his experience in the nuclear industry, “we are not aware at present date of any failures that we have observed due to excessive ohmic heating.”<sup>1046</sup> He added that, in instances in which cables have failed, forensic analysis of such failures did not reveal evidence of overheating due to ohmic heating.<sup>1047</sup> Dr. Sedding further opined that, in his experience, cable failures that result from incorrectly designed cable ampacity tend to be fairly rapid, in some cases within months of commencing operation.<sup>1048</sup> He went on to say that he has not encountered a situation where a cable degraded over a long period of time as a result of being operated at a temperature slightly above its rated operating temperature.<sup>1049</sup>

Speaking to the specific case of Indian Point, another Entergy witness, Mr. McCaffrey observed that, “we have seen no degradation or failures on our medium voltage cables or our underground cables due to aging,”<sup>1050</sup> and “I know of no history of ohmic heating that has caused degradation of the cables.”<sup>1051</sup>

Based on the evidence presented, we find that the operating experience at nuclear power plants has not shown excessive heating of non-EQ cables to be an issue. Instead, based on the record before us, we find that the design of the cable system at Indian Point is sufficient to prevent excessive heating in underground cables. Given that New York failed to put forward any evidence suggesting that the design of the cable system at Indian Point is flawed, or provided any reason to suspect there were errors in cable installation, we find that Entergy’s and the NRC Staff’s witnesses credibly established that underground cables are not impacted by external heat sources, and that the cables and conduits are designed such that heat from the cables themselves is not an issue.

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<sup>1043</sup> Report of Earle C. Bascom III, P.E. in Support of Contentions NYS-6 and 7 (Dec. 15, 2011) at 27 (Ex. NYS000138); *see also* Tr. at 4159-60 (Mr. Bascom for New York).

<sup>1044</sup> Tr. at 4160 (Mr. Bascom for New York).

<sup>1045</sup> *Id.*

<sup>1046</sup> Tr. at 4116 (Dr. Sedding for Entergy).

<sup>1047</sup> *Id.*

<sup>1048</sup> Tr. at 4118 (Dr. Sedding for Entergy).

<sup>1049</sup> Tr. at 4120-21 (Dr. Sedding for Entergy).

<sup>1050</sup> Tr. at 4104 (Mr. McCaffrey for Entergy).

<sup>1051</sup> Tr. at 4115-16 (Mr. McCaffrey for Entergy).

In effect, New York's challenge is not with Entergy's AMP but instead an attempt to contest Indian Point facility design as reflected in the current licensing basis for the plant. But such a challenge is clearly outside the scope of license renewal, and so must be rejected.<sup>1052</sup>

c. *Inaccessible Aboveground Cables Included in Another AMP*

As originally proffered by New York, NYS-6/7 did not distinguish between aboveground and underground inaccessible cables, although it subsequently did make such a distinction.<sup>1053</sup> As discussed above beginning at page 393, the exposure of underground inaccessible, non-EQ low- and medium-voltage cables to excessive heating from external sources is not an effect that requires aging management. With regard to aboveground inaccessible non-EQ low- and medium-voltage cables, Entergy witness Mr. Rucker testified that concerns about excessive heating are dealt with by a separate AMP, which Entergy refers to as its "Non-EQ Insulated Cables and Connections Program."<sup>1054</sup> That AMP calls for inspection of a representative sample of accessible cables in adverse localized environments. Entergy witnesses testified that the program is consistent with the corresponding AMP in section XI.E1 of GALL-1.<sup>1055</sup>

Significantly, New York did not challenge the adequacy of the Non-EQ Insulated Cables and Connections Program to manage thermal aging effects on aboveground cables.<sup>1056</sup> Accordingly, the issue presented by NYS-6/7 is confined to whether Entergy's Non-EQ Inaccessible Medium and Low Voltage Cable Program is sufficient to address the effects of thermally induced aging on inaccessible, underground cables.

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<sup>1052</sup> See AmerGen Energy Co., LLC (Oyster Creek Nuclear Generating Station), CLI-06-24, 64 NRC 111, 117-18 (2006) ("review of a license renewal application does not reopen issues relating to a plant's current licensing basis").

<sup>1053</sup> In its rebuttal statement of position, New York refocused its argument on underground cables. See State of New York's Revised Statement of Position Regarding Contentions NYS-6 and NYS-7 (June 29, 2012) at 7-9 (Ex. NYS000398).

<sup>1054</sup> Tr. at 4100-01 (Mr. Rucker for Entergy); see License Renewal Application at B-85 (Ex. ENT00015B).

<sup>1055</sup> See Entergy NYS-6/7 Testimony at 46 (Ex. ENTR00233).

<sup>1056</sup> We make no finding as to the adequacy of the Non-EQ Insulated Cables and Connections Program because it is beyond the scope of NYS-6/7 and no party has raised a separate challenge to that program.

*d. Use of Testing Results to Detect Impending Failure Due to Excessive Heating*

Finally, New York witness Mr. Bascom testified that, in his opinion, the testing program for inaccessible cables described in Entergy's LRA is insufficient to detect impending excessive heating-related failures because it focuses strictly on moisture as a cause of aging effects.<sup>1057</sup> He declared that the testing methods in Entergy's AMP for inaccessible cables are insufficient to prevent cable failures due to elevated temperatures, because those methods "would likely detect a degradation of the insulation after it has happened."<sup>1058</sup> He further asserted that thermal stress "generally has to progress for an extended period of time before the insulation would degrade to the point that you detect it [with] one of these tests."<sup>1059</sup>

Mr. Bascom then offered two methods by which inaccessible cables could be monitored for excessive heating. He stated that the first method, Distributed Temperature Sensing, involves retrofitting the cables with "a fiber optic sensor that provides temperature readings along the length of the cable every meter,"<sup>1060</sup> followed by trending the data over time.<sup>1061</sup> Mr. Bascom conceded, however, that while such systems have been used in electricity-generating utilities, they have not been used in the nuclear industry.<sup>1062</sup> As for the second method, Mr. Bascom testified that Entergy should identify potential "hot spots" and insert discrete thermocouples to monitor their temperature.<sup>1063</sup>

As was the case with our previous findings regarding the impact of ohmic heating on underground cables and the adequacy of an existing AMP to address aboveground cable heating, we do not believe that the testing actions proposed by the State are necessary to provide reasonable assurance that these cables will continue to perform their intended functions during the PEO.

The underground cables at Indian Point pose difficulties for monitoring their condition. Mr. McCaffrey testified that Indian Point's current configuration of cables does not offer a way for the direct measurement of temperature in the conduits or duct bank systems of the inaccessible cables.<sup>1064</sup> Still, it was Mr. McCaffrey's expressed opinion that even without direct temperature measurements, the testing procedures in its AMP for inaccessible non-EQ cables are sufficient

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<sup>1057</sup> Tr. at 4106 (Mr. Bascom for New York).

<sup>1058</sup> Tr. at 4112 (Mr. Bascom for New York).

<sup>1059</sup> Tr. at 4113 (Mr. Bascom for New York).

<sup>1060</sup> New York NYS-6/7 Testimony at 32 (Ex. NYS000136).

<sup>1061</sup> *Id.*

<sup>1062</sup> Tr. at 4107 (Mr. Bascom for New York).

<sup>1063</sup> New York NYS-6/7 Testimony at 32-33 (Ex. NYS000136).

<sup>1064</sup> Tr. at 4136 (Mr. McCaffrey for Entergy).

to guard against cable failures due to degradation from excessive heat. Mr. Rucker explained that, for underground cables, “[y]ou cannot access the external environment . . . [t]hat is why we test those cables.”<sup>1065</sup> Mr. McCaffrey asserted that “[t]he testing we do is able to detect degradation of cable before it fails.”<sup>1066</sup>

Staff witness Mr. Doutt provided insight into how Entergy’s testing would detect thermal degradation and guard against failure. He pointed to NUREG/CR-7000, a Staff technical document entitled “Essential Elements of an Electric Cable Condition Monitoring Program,” which provides details of various testing procedures.<sup>1067</sup> Table 3.1 of that document lists the condition monitoring techniques and the corresponding stressors and aging mechanisms that each can detect.<sup>1068</sup> For the Tan-Delta test (i.e., the “Dielectric Loss — Dissipation Factor/Power Factor” test) that Entergy’s witnesses testified they intend to use for testing medium-voltage cables,<sup>1069</sup> the stressors likewise include elevated temperature to detect aging mechanisms including thermally induced cracking.<sup>1070</sup> For the “Insulation Resistance” test that Entergy’s witnesses stated they intend to use for testing low-voltage cables,<sup>1071</sup> the stressors include elevated temperature to detect aging mechanisms including thermally induced cracking in the presence of moisture.<sup>1072</sup>

Mr. Doutt further testified that “the test that they are proposing, thermal [degradation] would be one of the stressors that could be detected by that test.”<sup>1073</sup> Although the aging mechanisms may be different for thermal stress than for moisture stress, “the aging effect would be the same. You are looking at how did it degrade[s] the insulation. And that degradation . . . is what [the tests] are designed to look for.”<sup>1074</sup> Another NRC Staff witness, Mr. Nguyen, likewise opined that the “testing methods that they propose will detect the aging effect due to heating because [the] reduced insulation resistance will be picked up by the testing procedure.”<sup>1075</sup> New York witness Mr. Bascom conceded that insulation resistance testing may pick up degradation in advance of failure.<sup>1076</sup>

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<sup>1065</sup> Tr. at 4102 (Mr. McCaffrey for Entergy).

<sup>1066</sup> Tr. at 4104-05, 4125 (Mr. McCaffrey for Entergy).

<sup>1067</sup> Tr. at 4154 (Mr. Doutt for the NRC Staff).

<sup>1068</sup> NUREG/CR-7000 at 3-15 to -19 (Ex. NYS000148).

<sup>1069</sup> Tr. at 4029 (Mr. Rucker for Entergy).

<sup>1070</sup> NUREG/CR-7000, at 3-15 (Ex. NYS000148).

<sup>1071</sup> Tr. at 4029 (Mr. Rucker for Entergy).

<sup>1072</sup> NUREG/CR-7000, at 3-15 (Ex. NYS000148).

<sup>1073</sup> Tr. at 4154 (Mr. Doutt for the NRC Staff).

<sup>1074</sup> *Id.*

<sup>1075</sup> Tr. at 4151 (Mr. Nguyen for the NRC Staff).

<sup>1076</sup> Tr. at 4140 (Mr. Bascom for New York).

Entergy witness Dr. Sedding testified that while he was not willing to guarantee that incremental degradation of cable insulation would be detectable from the testing measurements,<sup>1077</sup> it was his opinion that measurements such as VLF/Tan Delta would have a probability of indicating that there was a deterioration mechanism in process.<sup>1078</sup> As mentioned above, we find that, with the acceptance criteria Entergy has defined, the Applicant will be able to detect and determine potential cable failure,<sup>1079</sup> and if testing indicates a cable is operating below the acceptance criteria, Entergy will be able to take corrective actions and, *inter alia*, determine the cause of the degraded condition.<sup>1080</sup> Also we find that the testing proposed by Entergy is sufficient to provide reasonable assurance that cable failures from thermally induced insulation degradation will not occur.

#### E. Summary of Findings Relative to NYS-6/7

Because the Commission has established that an AMP consistent with GALL provides reasonable assurance, our task is to determine whether Entergy has provided sufficient information to demonstrate that the AMP for non-EQ inaccessible medium- and low-voltage cables is consistent with GALL. In this regard, we find that Entergy's AMP, as described in LRA §§ A.2.1.22 and A.3.1.22 (UFSAR Supplements), § B.1.23, and in the Entergy responses to the Staff's RAIs, incorporates the ten elements of the GALL-1 AMP for non-EQ medium-voltage inaccessible cables. In addition to the statement in the revised LRA that the program will be implemented consistent with the corresponding GALL-1 AMP,<sup>1081</sup> the updated program description incorporates non-EQ low-voltage inaccessible cables into the program, and specific testing procedures that incorporate the attributes of GALL-2.<sup>1082</sup> Further, we find that Entergy will be required by binding license conditions to implement the program in a manner consistent with GALL.<sup>1083</sup> New York's concerns about excessive heating as a source of cable degradation fail to establish that any aspect of the AMP for non-EQ inaccessible medium- and low-voltage cables is inconsistent with the GALL or otherwise deficient.

#### F. Conclusions of Law

We find that the preponderance of the evidence demonstrates that the elements

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<sup>1077</sup> Tr. at 4134 (Dr. Sedding for Entergy).

<sup>1078</sup> Tr. at 4144-45 (Dr. Sedding for Entergy).

<sup>1079</sup> Tr. at 4138 (Mr. McCaffrey for Entergy).

<sup>1080</sup> Tr. at 4136-37 (Mr. McCaffrey for Entergy).

<sup>1081</sup> See NL-11-096, Attach. 1 at 1-2 (Ex. NYS000154).

<sup>1082</sup> *Id.*

<sup>1083</sup> *Id.*

of Entergy's AMP for non-EQ inaccessible medium- and low-voltage cables are consistent with the corresponding elements of GALL and, as such, that program provides the requisite "reasonable assurance" under 10 C.F.R. §§ 54.21(a)(3) and 54.29(a).<sup>1084</sup> Accordingly, the issues raised by New York regarding the adequacy of Entergy's AMP for the aging management of these cables have been resolved in favor of the Applicant and do not prevent the NRC from issuing the requested license renewal.

## VI. SAFETY CONTENTION NYS-8 (TRANSFORMERS)

### A. Statement of Contention NYS-8

NYS-8, a safety contention which challenges the aging management of electrical transformers, as litigated on December 13, 2012, reads as follows:

The LRA for IP2 and IP3 violates 10 C.F.R. §§ 54.21(a) and 54.29 because it fails to include an aging management plan for each electrical transformer whose proper function is important for plant safety.<sup>1085</sup>

### B. NYS-8 Background

#### 1. NYS-8 Procedural History

NYS-8 was filed as part of New York's petition to intervene and has not been amended. This contention asserts that, because transformers perform their function without moving parts or a change in configuration or properties, they are subject to aging management review (AMR) under 10 C.F.R. § 54.21. According to New York, the failure to properly manage aging of transformers might compromise "the integrity of the reactor coolant pressure boundary"; "the capability to shut down the reactor and maintain it in a safe shutdown condition"; or "the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures."<sup>1086</sup> In addition, New York cautioned that failure to properly manage the effects of aging on electrical transformers "could result in loss of emergency power to the 480 volt safety equipment and 6.9 kV busses, including all station blackout loads," and that the consequence of failures "may

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<sup>1084</sup> See Audit Report at 23 (Ex. ENT000041).

<sup>1085</sup> New York Petition at 103; LBP-08-13, 68 NRC 43, 89 (2008). The Board clarified that although the scope of this contention includes the allegation that Entergy has not proposed an AMP for each electrical transformer in IP2 and IP3 required for compliance with 10 C.F.R. §§ 50.48 and 50.63, this contention does not include transformer support structures.

<sup>1086</sup> New York Petition at 104.

result in accidents beyond the Design Basis Accidents resulting in exposures to the public.”<sup>1087</sup>

On July 31, 2008, the Board admitted NYS-8, concluding that a genuine dispute existed as to whether 10 C.F.R. § 54.21 requires Entergy’s LRA to contain an AMP for transformers.<sup>1088</sup> Noting that transformers are not included in the lists in 10 C.F.R. § 54.21(a)(1)(i) of components that are expressly included or excluded from AMR, the Board stated that it would require, *inter alia*, representations from the parties “whether transformers are more similar to the included, or to the excluded, component examples.”<sup>1089</sup>

## **2. Legal Standards and Issues Related to NYS-8**

As discussed above in more detail with respect to RK-TC-2, NYS-5, and NYS-6/7, NRC regulations require each reactor LRA to contain a list of structures and components subject to AMR,<sup>1090</sup> and the Commission may only issue a renewed license upon a finding that reasonable assurance exists that the effects of aging during the PEO on such structures and components will be adequately managed.<sup>1091</sup> The structures and components subject to AMR include those “[t]hat perform an intended function, as described in § 54.4, *without moving parts or without a change in configuration or properties.*”<sup>1092</sup> The regulation further provides a list of structures and components that are expressly subject to AMR, as well as those that expressly are not.<sup>1093</sup>

## **3. Evidentiary Record Related to NYS-8**

### **a. Identification of Witnesses Who Provided Testimony Relevant to NYS-8**

Entergy presented four witnesses on NYS-8 — John W. Craig,<sup>1094</sup> Dr. Steven E. Dobbs,<sup>1095</sup> Thomas S. McCaffrey,<sup>1096</sup> and Robert B. Rucker.<sup>1097</sup> On March 28, 2012, Entergy submitted the testimony of these four witnesses (and a revised

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<sup>1087</sup> *Id.*

<sup>1088</sup> LBP-08-13, 68 NRC at 88-89.

<sup>1089</sup> *Id.* at 89.

<sup>1090</sup> 10 C.F.R. § 54.21(a)(1) (2012).

<sup>1091</sup> *Id.* § 54.29(a)(1).

<sup>1092</sup> *Id.* § 54.21(a)(1)(i) (emphasis added).

<sup>1093</sup> *Id.*

<sup>1094</sup> Curriculum Vitae of John W. Craig (Ex. ENT000094).

<sup>1095</sup> Curriculum Vitae of Steven E. Dobbs (Ex. ENT000093).

<sup>1096</sup> Curriculum Vitae of Thomas S. McCaffrey (Ex. ENT000095).

<sup>1097</sup> Curriculum Vitae of Roger B. Rucker (Ex. ENT000092).

version on March 30, 2012),<sup>1098</sup> which was admitted into evidence on October 15, 2012.<sup>1099</sup>

The NRC Staff presented two witnesses on NYS-8 — Roy Mathew<sup>1100</sup> and Sheila Ray.<sup>1101</sup> On March 29, 2012, the NRC Staff submitted the testimony of these two witnesses,<sup>1102</sup> which was admitted into evidence on October 15, 2012.<sup>1103</sup>

New York presented a single witness on NYS-8 — Dr. Robert C. Degeneff.<sup>1104</sup> On December 12, 2011, New York submitted Dr. Degeneff's written direct testimony (a revised version was filed on December 14, 2011).<sup>1105</sup> On June 29, 2012, New York submitted the rebuttal testimony of Dr. Degeneff (a revised version was submitted on August 6, 2012).<sup>1106</sup> The revised versions of these exhibits were admitted into evidence on October 15, 2012.<sup>1107</sup>

*b. Identification of Admitted Exhibits Relevant to NYS-8*

Relative to NYS-8, Entergy submitted forty-two exhibits, the NRC Staff submitted nine exhibits, and New York submitted fifty-one exhibits.<sup>1108</sup> These exhibits were admitted into the record on October 15, 2012.<sup>1109</sup>

*c. Relevant NRC Staff and Industry Guidance Documents*

1. Final Rule: "Nuclear Power Plant License Renewal; Revisions," 60 Fed. Reg. 22,461. The Statement of Considerations (SOC) to the license renewal rule discusses the characteristics of components that do or do not require aging

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<sup>1098</sup> See Testimony of Applicant Witnesses Roger Rucker, Steven Dobbs, John Craig, and Thomas McCaffrey Regarding Contention NYS-8 (Electrical Transformers) (Mar. 30, 2012) (Ex. ENTR00091) [hereinafter Entergy NYS-8 Testimony].

<sup>1099</sup> Tr. at 1269 (Judge McDade).

<sup>1100</sup> Roy K. Mathew, Statement of Professional Qualifications (Ex. NRC000032).

<sup>1101</sup> Sheila Ray, Statement of Professional Qualifications (Ex. NRC000033).

<sup>1102</sup> NRC Staff's Testimony of Roy K. Mathew and Sheila Ray Concerning Contention NYS-8 (Transformers) (March 29, 2012) (Ex. NRC000031) [hereinafter NRC Staff NYS-8 Testimony].

<sup>1103</sup> Tr. at 1269 (Judge McDade).

<sup>1104</sup> Curriculum Vitae of Robert C. Degeneff (Ex. NYS000004).

<sup>1105</sup> See Pre-Filed Written Testimony of Dr. Robert C. Degeneff Regarding Contention NYS-8 (Dec. 14, 2011) (Ex. NYSR00003) [hereinafter New York NYS-8 Testimony].

<sup>1106</sup> See Rebuttal Testimony of Dr. Robert C. Degeneff, D. Eng. Regarding Contention NYS-8 (Aug. 6, 2012) (Ex. NYSR00414) [hereinafter New York NYS-8 Rebuttal Testimony].

<sup>1107</sup> Tr. at 1269 (Judge McDade).

<sup>1108</sup> See Appendix B of this Partial Initial Decision.

<sup>1109</sup> Tr. at 1269 (Judge McDade); see Licensing Board Order (Scheduling Post-Hearing Matters and Ruling on Motions to File Additional Exhibits) (Jan. 15, 2013) (unpublished); see Licensing Board Order (Admitting Entergy's Exhibits) (Aug. 20, 2013) (unpublished).

management review, categorizing SSCs as passive if “they perform their intended function without moving parts or without a change in configuration or properties and the effects of aging degradation for these components are not readily monitorable.”<sup>1110</sup>

2. NEI 95-10, Industry Guideline for Implementing the Requirements of 10 C.F.R. Part 54 — The License Renewal Rule. This document states that transformers do not require AMR, based on a determination that “[t]ransformers perform their intended function through a change in state” and “degradation of the transformer’s ability to perform its intended function is readily monitorable.”<sup>1111</sup>

#### **4. Contention Issues**

In the context of NYS-8, New York addresses several issues integral to a determination of whether AMR is required for in-scope transformers at IPEC. These include: a discussion of transformer operation that assesses whether transformers perform their function in an active or passive manner;<sup>1112</sup> a review of transformers’ aging management regulatory history; a summary of the legal foundation for assessing transformers’ AMR; an analysis of the difference between monitoring transformers for gross or impending failure; information as to whether transformers change their configuration, properties, or state during operations; an assessment of the ability to monitor age-related transformer degradation; and a comparison of transformer operations with the operation of SSCs included in or excluded from AMR by the regulations in 10 C.F.R. § 54.21(a)(1)(i). The evidence for each of these issues and the Board’s findings are discussed in the subsequent sections of this opinion followed by a summary of these findings.

#### **C. Transformer Operation**

As accurately summarized by Entergy’s witnesses without objection or contradiction from any other party:

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<sup>1110</sup> Nuclear Power Plant License Renewal; Revisions, 60 Fed. Reg. 22,461, 22,477 (May 8, 1995) (Ex. NYS000016) [hereinafter Statement of Considerations]. *See also* 10 C.F.R. § 54.21(a).

<sup>1111</sup> Nuclear Energy Institute, Industry Guideline for Implementing the Requirements of 10 C.F.R. Part 54 — The License Renewal Rule (NEI 95-10 Rev. 6) (June 2005) at B-14, C-12 (Ex. ENT000098) [hereinafter NEI 95-10].

<sup>1112</sup> For convenience, in its SOC for the 1995 update of Part 54 rules, the Commission has used the term “passive” to describe SSCs for which “aging degradation is not readily monitored,” and has indicated that those SSCs “perform an intended function without moving parts or without a change in configuration or properties” and “that ‘a change in configuration or properties’ should be interpreted to include ‘a change in state.’” Statement of Considerations at 22,477 (Ex. NYS000016). Conversely, the term “active” is used for SSCs with moving parts or a change in configuration, properties, or state that can be used to readily monitor their functional degradation. *See id.*

a transformer is an electrical device that converts alternating current (“AC”) power at a certain voltage level to AC power at a different voltage level . . . or which provides isolation to electrical circuits. Current refers to the passage of electrons through a conductor (*i.e.*, a material that easily permits electric current to flow) . . . . Voltage is a force that causes current to flow through an electrical conductor.<sup>1113</sup>

Entergy’s witnesses went on to state that “a transformer is formed by winding two coils of wire around the same iron form or core. The coil or winding used to input power to the transformer is called the primary winding. The coil or winding used to output power from the transformer is called the secondary winding.”<sup>1114</sup> The alternating current in the primary coil produces a magnetic field in the iron core that constantly varies in magnitude over time and induces a voltage in the secondary winding.<sup>1115</sup> Although there is a slight loss of power, the magnetic field is contained in the iron core and impacts the secondary coil.<sup>1116</sup> The voltages and currents at output terminals of the transformer are in close relationship to the ratio of the turns of wire that exist in the primary and secondary transformer windings.<sup>1117</sup> The ratio of the primary and secondary windings thus is referred to as the “turns ratio” of the transformer.<sup>1118</sup>

As described by Entergy, and not challenged by any of the parties, the intended function of a transformer is to increase the voltage (*i.e.*, a step-up transformer in which there are more turns in the secondary coil than in the primary coil), to decrease the voltage (*i.e.*, a step-down transformer in which there are fewer turns in the secondary coil than in the primary coil), or to provide isolation between the input and output circuits (*i.e.*, an isolation transformer where the number of turns is the same in the primary and secondary coils).<sup>1119</sup> Further, the corresponding change in the current is the inverse of the change in voltage.<sup>1120</sup>

Dr. Degeneff for New York stated that the insulation structure within the windings may be deformed or damaged by any short circuit induced movement within the coils, possibly leading to a sudden failure of the transformer.<sup>1121</sup> Dr. Degeneff further testified that if the movements and damage are less severe, any shorting of current may break down the insulating oil in the transformer, leading to the formation of combustible gases in the oil with the presence of

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<sup>1113</sup> Entergy NYS-8 Testimony at 26-27 (Ex. ENTR00091).

<sup>1114</sup> *Id.* at 27.

<sup>1115</sup> *Id.* at 28.

<sup>1116</sup> *Id.*

<sup>1117</sup> *Id.*; Tr. at 4398-402 (Dr. Dobbs for Entergy).

<sup>1118</sup> Entergy NYS-8 Testimony at 28 (Ex. ENTR00091).

<sup>1119</sup> *Id.* at 29.

<sup>1120</sup> *Id.* at 29-30.

<sup>1121</sup> Tr. at 4278-79 (Dr. Degeneff for New York).

acetylene indicating some sort of arcing within the transformer.<sup>1122</sup> Mr. McCaffrey testified for the Applicant that Entergy has installed online gas monitors for its main generation transformers,<sup>1123</sup> but that the transformers involved with returning power online after a station blackout do not have continuous online gas monitoring.<sup>1124</sup>

As noted above, there was no dispute among the parties regarding description of transformer workings expressed above. We find that the summary presented above is a reasonable description of the basic operation of a transformer.

#### D. Regulatory History of Aging Management for Transformers

During the 1995 revisions to 10 C.F.R. Part 54, the Commission stated that “structures and components that perform active functions can be generically excluded from an aging management review on the basis of performance or condition-monitoring programs.”<sup>1125</sup> Examples of structures and components requiring AMR (i.e., passive) and those excluded from AMR (i.e., active) are provided in the regulations.<sup>1126</sup> Transformers were not included as an example on either list.

Entergy, the NRC Staff, and New York witnesses agree that station auxiliary transformers and the IP3 GT (gas turbine) auto-start transformer (1) perform license renewal intended functions that fall within the scope of 10 C.F.R. § 54.4;<sup>1127</sup> (2) perform that intended function without moving parts;<sup>1128</sup> and (3) are not subject to replacement based on qualified life or specified time period.<sup>1129</sup> Therefore, the controversy framed by this contention involves only whether transformers serve “active” functions based on a change in properties or state that can be readily monitored.

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<sup>1122</sup> *Id.*

<sup>1123</sup> Tr. at 4269 (Mr. McCaffrey for Entergy).

<sup>1124</sup> Tr. at 4444 (Mr. McCaffrey for Entergy).

<sup>1125</sup> Statement of Considerations at 22,477 (Ex. NYS000016).

<sup>1126</sup> 10 C.F.R. § 54.21(a)(1)(i).

<sup>1127</sup> Entergy NYS-8 Testimony at 98 (Ex. ENTR00091); NRC Staff NYS-8 Testimony at 11, 17 (Ex. NRC000031); New York NYS-8 Testimony at 4 (Ex. NYSR00003). Although Entergy included all electrical components as within the scope of license renewal, the main transformers and the unit auxiliary transformers do not perform a license renewal intended function as defined in 10 C.F.R. § 54.4.

<sup>1128</sup> Entergy NYS-8 Testimony at 40-41 (Ex. ENTR00091); NRC Staff NYS-8 Testimony at 12 (Ex. NRC000031); New York NYS-8 Testimony at 6 (Ex. NYSR00003).

<sup>1129</sup> Entergy NYS-8 Testimony at 14 (Ex. ENTR00091); NRC Staff NYS-8 Testimony at 11, 8 (Ex. NRC000031); New York NYS-8 Testimony at 8 (Ex. NYSR00003). *See also* Tr. at 4434 (Mr. Rucker for Entergy).

While not legally binding, the NRC Staff issued a position paper in 1997 (*i.e.*, Grimes Letter or Position Paper) that expressed the Staff's opinion that transformers should be excluded from AMR because they perform "active" functions by "stepping down voltage from a higher to a lower value, stepping up voltage to a higher value, or providing isolation to a load."<sup>1130</sup> This position paper compared transformers to examples of components explicitly excluded by 10 C.F.R. § 54.21(a)(1)(i) from AMR in terms of how the performance of their intended functions would be achieved and whether aging degradation of these components would be readily monitored. This position paper went on to describe several monitoring tests for transformers and claimed that these tests "provide a direct indication of the performance of the transformer."<sup>1131</sup> As confirmed by NRC Staff witness Ms. Ray, Revision 1 and Revision 2 of the NRC Staff's *Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants* (SRP-LR),<sup>1132</sup> which both reference the Grimes Letter, simply state that transformers are not subject to AMR (*i.e.*, they are considered "active" components) with no further elaboration.<sup>1133</sup>

In its statement of position, Entergy references the Commission's decision in the *Seabrook* license renewal case,<sup>1134</sup> and alleges that the decision "implicitly endorsed the Staff's 1997 guidance concerning transformers."<sup>1135</sup> Likewise, the NRC Staff represented that "[i]n the recent *Seabrook* decision, the Commission rejected a contention virtually identical to . . . NYS-8,"<sup>1136</sup> and suggested that *Seabrook* supports the position that transformers are "active" components.

Regarding the historical handling of transformers for other LRAs, the precedent of the Staff's SRP-LR and the Grimes Letter as determinative of whether transformers change configuration, properties, or state is discussed further in Section VI.F of this Initial Decision beginning at page 412. And with regard to the Commission's decision in *Seabrook*, that ruling was not a merits determination regarding the aging management requirements for transformers. Instead, it dealt with the admissibility of a contention challenging the applicant's lack of AMR for transformers.

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<sup>1130</sup>Letter from Christopher Grimes, NRC, to Douglas J. Walters, NEI, "Determination of Aging Management Review for Electrical Components" (Sept. 19, 1997) at 2 (Ex. ENT000097) [hereinafter Grimes Letter].

<sup>1131</sup>*Id.* at 2.

<sup>1132</sup>SRP-LR Rev. 1 at 2.1-23 (Ex. NYS000195); SRP-LR at 2.1-26 (Ex. NYS000161).

<sup>1133</sup>See Tr. at 4462-64 (Ms. Ray for the NRC Staff).

<sup>1134</sup>See *Seabrook*, CLI-12-5, 75 NRC 301.

<sup>1135</sup>Applicant's Statement of Position Regarding Contention NYS-8 (Electrical Transformers) (Mar. 28, 2012) at 18 (Ex. ENT000090).

<sup>1136</sup>NRC Staff's Initial Statement of Position on Contention NYS-8 (Transformers) (Mar. 29, 2012) at 12 (Ex. NRC000030).

Entergy and the NRC Staff argue that *Seabrook* endorses the Grimes Letter, which concludes that transformers serve “active” functions and should be excluded from AMR. We find no such endorsement in the Commission’s ruling. In *Seabrook*, the Commission clearly and repeatedly stated that, in their opinion, the intervenors did not provide sufficient support for an admissible contention.<sup>1137</sup> The Commission mentioned the Grimes Letter, but stated that the intervenors were derelict in not addressing the technical position outlined by the Staff.<sup>1138</sup> The Commission took no position on the merits of the contention and neither supported nor refuted the Staff’s opinion that transformers serve “active” functions. Lacking a definitive decision by the Commission that transformers are active, we find that the *Seabrook* decision does not control our determination in this proceeding.

In contrast, on the full evidentiary record in this proceeding, New York persuasively established that the nonbinding Staff guidance expressed in the Grimes Letter is incorrect in that electrical transformers are “passive” components that must be covered by an AMP because:

1. Transformers perform their function without moving parts or a change in configuration or properties.
2. Changes that take place during transformer operations do not involve a change in properties or state of the transformer itself, but rather occur in the electrical energy passing through the transformer.
3. Transformers are more similar to the regulatory examples of “passive” components than to the regulatory examples of “active” components.
4. The normal monitoring of transformers cannot detect incremental functional degradation, and therefore is not very useful in aging management.
5. At least 18 documented transformer failures at various power reactors may have been avoided if they had been subjected to an AMP.
6. The effects of a transformer failure at a nuclear power reactor are potentially catastrophic.

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<sup>1137</sup> See *Seabrook*, CLI-12-5, 75 NRC at 319 (stating that the Commission agrees with NextEra that “Friends/NEC’s contention is too thinly supported to merit admission.”); *id.* at 320 (stating that the Commission “decline[s] here to find Friends/NEC’s conclusory statements sufficient to support an admissible contention.”); *id.* at 322 (“In sum, the Board erred in admitting Contention 2, as it lacks the support required by 10 C.F.R. § 2.309(f)(1)(v)”).

<sup>1138</sup> *Seabrook*, CLI-12-5, 75 NRC at 320 (stating that “Friends/NEC and Mr. Blanch disregard the Staff guidance. As a result, Mr. Blanch’s conclusory statement that transformers are ‘passive’ components is not adequate as a basis for the contention.”); *id.* (stating that “in the absence of a supported challenge to the guidance, we do not find a genuine dispute with the applicant meriting litigation in this proceeding.”).

These topics and other issues raised in this contention by the parties are addressed further in the subsequent sections of this decision.

## **E. Legal Foundation for Assessing the Need for AMR of Transformers**

### ***1. Need for AMR***

The aging management review requirements and process will not be repeated here as those matters were discussed in Section II.B.

### ***2. Aging Management: Part 54 License Renewal and Part 50 Maintenance Rule***

NRC Staff witnesses conceded that transformers are within the scope of license renewal.<sup>1139</sup> However, while transformers are in scope, according to Ms. Ray for the Staff, they do not require AMPs because “they are active components.”<sup>1140</sup> Entergy’s witnesses agreed, adding, “[a]s with other active components, Entergy has implemented at IPEC performance monitoring and preventive maintenance programs designed to monitor and assess the functionality of transformers” in accordance with 10 C.F.R. § 50.65, i.e., the maintenance rule, and industry guidance.<sup>1141</sup>

The Commission stated in its SOC that “the license renewal rule should credit existing maintenance activities and maintenance rule requirements for most structures and components.”<sup>1142</sup> But this statement does not exclude all current 10 C.F.R. Part 50 or CLB issues from the scope of license renewal; only SSCs with “active” functions are explicitly exempt from AMR.<sup>1143</sup> SSCs with “passive” functions present limitations that must be considered in determining whether an SSC can be excluded from AMR for license renewal.<sup>1144</sup> This position is reflected in the Staff’s approach in license renewal proceedings, which is to require AMR be performed for numerous “passive” SSCs that fall within the CLB and maintenance rule to assure that the program is adequate to manage aging effects during the PEO.<sup>1145</sup>

And with regard to SSCs that have a “passive” function, the Commission has stated:

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<sup>1139</sup> NRC Staff NYS-8 Testimony at 11 (Ex. NRC000031).

<sup>1140</sup> Tr. at 4292-93 (Ms. Ray for the Staff).

<sup>1141</sup> Entergy NYS-8 Testimony at 11 (Ex. ENTR00091).

<sup>1142</sup> Statement of Considerations at 22,471.

<sup>1143</sup> 10 C.F.R. § 54.21; Statement of Considerations at 22,472 (Ex. NYS000016).

<sup>1144</sup> Statement of Considerations at 22,472 (Ex. NYS000016).

<sup>1145</sup> NRC Staff NYS-8 Testimony at 10 (Ex. NRC000031).

Although the requirements of the maintenance rule apply to systems, structures, and components that perform both active and passive functions, the Commission has determined that performance and condition-monitoring programs for structures and components that perform passive functions present limitations that should be considered in determining that structures and components can be generically excluded from an aging management review for license renewal.

On the basis of consideration of the effectiveness of existing programs which monitor the performance and condition of systems, structures, and components that perform active functions, the Commission concludes that structures and components associated only with active *functions* can be generically excluded from a license renewal aging management review.<sup>1146</sup>

In summary, 10 C.F.R. § 54.30 does not per se exclude SSCs that currently fall under the maintenance rule from 10 C.F.R. Part 54 requirements. The only structures and components excluded from AMR are those with “active” functions that are readily monitorable.

## F. Change in Configuration, Properties, or State in a Transformer

This section focuses on whether transformers should be considered “passive” because there is not a change in property or state during operations. In later sections, we discuss the ability to “readily monitor” transformer degradation, and we review whether transformers are “subject to replacement based on a qualified life or specified time period”<sup>1147</sup> and we compare transformers to components listed in the regulations to help ascertain to which of the components in the two groups<sup>1148</sup> that transformers are most similar.

### I. Evidence Related to the Change in Configuration, Properties, or State in a Transformer

Essential to our resolution of this contention is whether alleged changes that take place during transformer operations (e.g., changes in voltage, current, and magnetism)<sup>1149</sup> occur due to a change in the properties or state of the transformer itself, or of the electrical energy passing through the transformer.

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<sup>1146</sup> Statement of Considerations at 22,471-72 (Ex. NYS000016) (emphasis added).

<sup>1147</sup> 10 C.F.R. § 54.21(a)(1)(ii).

<sup>1148</sup> The two groups are SSCs expressly excluded from AMR by regulation and those SSCs that specifically require AMR. See 10 C.F.R. § 54.21(a)(1)(i).

<sup>1149</sup> We note that if a transformer is not 100% efficient, its internal temperature can increase as electrical energy passes through it. Nevertheless, as neither Entergy nor the NRC Staff presented evidence of this potential or even suggested that this phenomenon constitutes a change in the properties or state of a transformer, the Board does not address this issue.

In its 1997 position paper, the NRC Staff stated that “[t]ransformers perform their intended function through a change in state by stepping down voltage from a higher to a lower value, stepping up voltage to a higher value, or providing isolation to a load.”<sup>1150</sup> The Staff’s witnesses, Mr. Mathew and Ms. Ray, opined that “[t]ransformers perform their intended functions through a change in state (*i.e.*, a change in voltage, current, and magnetic flux). In other words, a transformer changes its state by transforming electrical energy into magnetic energy, then back into electrical energy again.”<sup>1151</sup> Ms. Ray added that “[i]n order for the transformer to operate, there has to be a change in flux, and that changing magnetic flux is the change in state.”<sup>1152</sup>

Entergy’s position mirrors the NRC Staff’s views. Entergy’s witnesses testified that “transformers perform their intended functions with a readily monitorable change in configuration or properties and therefore do *not* meet the section 54.21(a)(1)(i) AMR criterion and are properly *excluded* from AMR under Part 54.”<sup>1153</sup> Their position is that:

[w]hen a transformer is energized from an electrical source, it changes from an idle state to an active state, and the electrical and magnetic properties of the transformer change. These changes in electric and magnetic properties are integral to transformer operation, necessary for performance of the transformer’s intended function, and can be directly measured or observed.<sup>1154</sup>

Dr. Dobbs also testified that he believes all electrical devices have a change in state when they are turned on.<sup>1155</sup>

Key to Entergy’s position is Dr. Dobbs’ expressed opinion that the voltage and current are not properties of the electricity (because electricity is merely a charge),<sup>1156</sup> but are properties inherent in the transformer based on its turns ratio.<sup>1157</sup> He went on to add that the magnetic field generated within a transformer is also a property of the transformer.<sup>1158</sup> This position matched the NRC Staff

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<sup>1150</sup> Grimes Letter at 2 (Ex. ENT000097).

<sup>1151</sup> NRC Staff NYS-8 Testimony at 11 (Ex. NRC000031).

<sup>1152</sup> Tr. at 4376-77 (Ms. Ray for the NRC Staff).

<sup>1153</sup> Entergy NYS-8 Testimony at 10 (Ex. ENTR00091) (emphasis in original).

<sup>1154</sup> *Id.* at 11.

<sup>1155</sup> Tr. at 4316 (Dr. Dobbs for Entergy).

<sup>1156</sup> While Entergy’s witness seemed to take umbrage at any suggestion that voltage and current are properties of electricity (*see* Tr. at 4344-45 (Dr. Dobbs for Entergy)), this somewhat academic point has little bearing on our decision. The term electricity is often used interchangeably with electrical energy or power.

<sup>1157</sup> Entergy NYS-8 Testimony at 32-34 (Ex. ENTR00091).

<sup>1158</sup> *Id.* at 33-34.

opinion mentioned above that the changing magnetic flux is the change in state of a transformer and that this change in flux is how a transformer operates.

Staff witnesses Ms. Ray and Mr. Mathew emphasized that their position (i.e., that transformers are “active” devices) is reflected in the guidance presented in the Staff’s “Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses” (Reg. Guide 1.1888) and the Staff’s SRP-LR, as well as in NEI’s “Industry Guidelines for Implementing the Requirements of 10 C.F.R. Part 54 — the License Renewal Rule” (NEI 95-10).<sup>1159</sup> Entergy witnesses Mr. Rucker and Mr. Craig augmented these references to include EPRI’s *License Renewal Electrical Handbook* (EPRI 1013475),<sup>1160</sup> and noted that both Table 2.1-5 of the SRP-LR and Appendix B to NEI 95-10 state that transformers do not meet the 10 C.F.R. § 54.21(a)(1)(i) criterion for “AMR-included” components (i.e., items that perform an intended function without moving parts or a change in configuration or properties).<sup>1161</sup> Entergy’s witnesses referenced the EPRI 1013475 statement that the current passing through the primary winding of a transformer “changes the physical properties of the transformer in a way that causes a voltage to be induced in the terminals of the secondary winding,” and that “[t]his property change of the transformer terminals is integral to the function of the transformer; i.e., a transformer performs its function by changing its physical properties.”<sup>1162</sup> While Entergy does not cite the physical properties EPRI claims are changing so as to cause this induction of voltage into the secondary winding, Entergy witnesses Mr. Rucker and Mr. Craig concluded that NEI 95-10 and EPRI 1013475 reflect the industry view that transformers are “active” components that do not require AMR under 10 C.F.R. Part 54.<sup>1163</sup>

In contrast, New York witness Dr. Degeneff testified that “[t]ransformers do not contain any moving parts, and during their operation, transformers experience no change in properties, no change in configuration, or any other sort of change.”<sup>1164</sup> Dr. Degeneff disagreed with Entergy, stating that changes in voltage and current are changes in characteristics of the electrical power, not the transformer. He testified that:

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<sup>1159</sup> Tr. at 4362, 4364-65 (Ms. Ray and Mr. Mathew for the NRC Staff) (referring to RES, Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses (Regulatory Guide 1.1888) (Sept. 2005) (Ex. ENT000099); SRP-LR Rev. 1 (Ex. NYS000195); NEI 95-10 (Ex. ENT000098)).

<sup>1160</sup> EPRI, Plant Support Engineering: License Renewal Electrical Handbook, Rev. 1 to EPRI-1003057 (Feb. 2007) (Ex. ENT000100).

<sup>1161</sup> Entergy NYS-8 Testimony at 19 (Ex. ENTR00091).

<sup>1162</sup> *Id.* at 21.

<sup>1163</sup> *Id.* at 19.

<sup>1164</sup> New York NYS-8 Testimony at 6 (Ex. NYSR00003).

Dr. Dobbs [a witness for Entergy] argues that voltage and current cannot be properties of electricity because they are created by an external force. However, this is fundamentally incorrect. The laws of physics dictate that voltage and current are properties of the electrical power flowing through the transformer, not properties of the transformer itself. Current is the flow rate of electric charge. Voltage is the electromagnetic force that causes charge to flow through a conductor.<sup>1165</sup>

Dr. Degeneff stated that “[i]t is commonly accepted that voltage and current are properties of electricity,” and that, in his opinion, Dr. Dobbs recognizes this fact by defining electrical power as the voltage times the current.<sup>1166</sup> According to Dr. Degeneff, this demonstrates that “[e]lectricity cannot exist without voltage and current — [i.e.,] these are its properties.”<sup>1167</sup> He maintained that, in contrast, transformers are effective conduits with constant characteristics (i.e., unchanging core size, turns ratio, and insulation thickness) making them “passive” devices that are merely a channel for the flow of electricity.<sup>1168</sup>

Dr. Degeneff also testified that he does not believe magnetism is a property of a transformer, as alleged by Entergy, and he further testified that the magnetic field is a property of electricity caused by the movement of electric current.<sup>1169</sup> He then went on to claim that Dr. Dobbs essentially acknowledged this in his explanation of transformer operation when he stated that “both positive and negative electric charges are surrounded by an electric field, and movement of those charges produces a magnetic field.”<sup>1170</sup> Dr. Degeneff also stated that, “[w]hen there is no electric current flowing into the transformer, there is no magnetic field [in a transformer] because the transformer’s coils and core are incapable of producing one.”<sup>1171</sup> To him, this illustrates that the magnetic field is only produced when electric current passes through the transformer in the same manner that a magnetic field is produced as electrical current passes through a cable — a component considered to be “passive” under 10 C.F.R. § 54.21.<sup>1172</sup> Furthermore, Dr. Degeneff testified that the magnetic field created by the electric current does not change the properties of the component whether it is a transformer or a cable.<sup>1173</sup>

Dr. Degeneff acknowledged that “Entergy and NRC Staff argue that as long as electricity is flowing correctly through the transformer, its performance is not

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<sup>1165</sup> New York NYS-8 Rebuttal Testimony at 11-12 (Ex. NYSR00414).

<sup>1166</sup> *Id.* at 12 (citing Entergy NYS-8 Testimony at 62 (Ex. ENTR00091)).

<sup>1167</sup> *Id.*

<sup>1168</sup> Tr. at 4343 (Dr. Degeneff for New York).

<sup>1169</sup> New York NYS-8 Rebuttal Testimony at 28-29 (Ex. NYSR00414).

<sup>1170</sup> *Id.* at 13 (citing Entergy NYS-8 Testimony at 33 (Ex. ENTR00091)).

<sup>1171</sup> *Id.*

<sup>1172</sup> *Id.*

<sup>1173</sup> *Id.*

degraded, and when the transformer fails it is obvious.”<sup>1174</sup> He countered this argument by stating that because of “the transformer’s passive nature, electricity can continue to pass through a degraded transformer up until the moment of transformer failure. For example, degradation to a transformer’s insulation will not result in any noticeable change to the current and voltage, but over time this could lead to transformer failure.”<sup>1175</sup> According to Dr. Degeneff:

it is the failure that is readily apparent, not the degradation. Transformer failure is the effect of unnoticed degradation, which is what an AMP is meant to prevent . . . A transformer that appears to be functioning properly can nonetheless be in a degraded condition that will lead to failure.<sup>1176</sup>

Finally, Dr. Degeneff testified that, based on his 40 years of experience with transformers, it was his opinion that Entergy’s position that transformers are “active” components is contrary to the overwhelming position of the engineering community, and Dr. Dobbs’ opinion is “over the top and . . . is not a reasonable position to take.”<sup>1177</sup> Dr. Dobbs, however, responded that Dr. Degeneff relied on the “academic community for support, and the academic community’s opinions do not apply in the case of nuclear power.”<sup>1178</sup>

## ***2. Findings Related to the Change in Configuration, Properties, or State in a Transformer***

While the NRC has concluded that the meaning of the term “property” should include “state” to avoid confusion with references that use the latter term,<sup>1179</sup> neither 10 C.F.R. Part 54 nor the SOC defines the term “property” as used in section 54.21(a)(1)(i). Nevertheless, we conclude that delineating the difference between property and state is of little importance to the resolution of this contention, and there is little reason not to consider these two terms as essentially synonymous.

We agree with the description in the Grimes Letter that a transformer operates by “stepping down voltage from a higher to a lower value, stepping up voltage to a higher value, or providing isolation to a load.”<sup>1180</sup> But, the Grimes Letter provided no technical justification to support the conclusion that this transformation of electrical power characteristics is a change in property or state of the transformer.

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<sup>1174</sup> *Id.* at 38-39.

<sup>1175</sup> *Id.* at 38.

<sup>1176</sup> *Id.* at 39.

<sup>1177</sup> Tr. at 4442 (Dr. Degeneff for New York).

<sup>1178</sup> Tr. at 4450-51 (Dr. Dobbs for Entergy).

<sup>1179</sup> Statement of Considerations at 22,477 (Ex. NYS000016).

<sup>1180</sup> Grimes Letter at 2 (Ex. ENT000097).

Even more mysterious to us is how the NRC Staff could reach the conclusion that there is a change in transformer state with an isolation transformer, i.e., a transformer with a one-to-one ratio between the coils that does not alter the voltage and current of the passing electrical energy.

The guidance provided by the Grimes Letter has likely contributed to subsequent guidance documents (i.e., Regulatory Guide 1.188 and the SRP-LR)<sup>1181</sup> and industry guidelines (i.e., NEI 95-10 and EPRI 1013475)<sup>1182</sup> that exclude transformers from AMR as “active” components. We find that these subsequent documents are not independent assessments of a transformer’s activity, but merely a repetition of the previous position expressed in the 1997 Grimes Letter — an opinion that, at best, has scant documentation justifying its technical conclusions. As a consequence, we conclude that the NRC Staff’s incorporation of its own guidance in addressing the need for aging management of transformers in its review of LRAs, including this one, rests upon the Grimes Letter.

Entergy’s position is consistent with the NRC Staff’s as originally documented in the Grimes Letter, i.e., that transformers perform their intended function through a change in state by modifying voltage or providing isolation to a load.<sup>1183</sup> It is Entergy’s position that the transformation of electrical energy into magnetic energy at the primary coil and then back into electrical energy at the secondary coil are properties of the transformer itself, rather than properties of the energy passing through the transformer.<sup>1184</sup> According to the Applicant’s witnesses, during this alleged change in state, “the electrical and magnetic properties of the transformer change. These changes in electric and magnetic properties are integral to transformer operation, [and] necessary for performance of the transformer’s intended function . . . .”<sup>1185</sup> Specifically, Dr. Dobbs testified that he believes that the change in voltage, current, and the development of magnetism within a transformer are properties of the transformer itself and not properties of the electrical energy passing through the transformer.<sup>1186</sup> We do not agree.

We find Entergy’s and the Staff’s position, while not beyond the bounds of reason, nonetheless is a stretch and, if one believes New York witness Dr. Degeneff, as we do, their position that transformers are “active” devices due to their change in state during operations runs counter to the prevailing view of the

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<sup>1181</sup> See RES, Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses (Regulatory Guide 1.1888) (Sept. 2005) (Ex. ENT000099); see also SRP-LR Rev. 1 (Ex. NYS000195).

<sup>1182</sup> See NEI 95-10 (Ex. ENT000098); EPRI, Plant Support Engineering: License Renewal Electrical Handbook, Rev. 1 to EPRI-1003057 (Feb. 2007) (Ex. ENT000100).

<sup>1183</sup> See Grimes Letter at 2 (Ex. ENT000097).

<sup>1184</sup> Entergy NYS-8 Testimony at 11 (Ex. ENTR00091).

<sup>1185</sup> Id.

<sup>1186</sup> Id. at 32-34.

electrical engineering community.<sup>1187</sup> While Dr. Dobbs argued that Dr. Degeneff's statement addresses only the position of the academic community and so has no relevance to this license renewal proceeding,<sup>1188</sup> we find nothing academic in Dr. Degeneff's 16 years of postdoctoral practical experience prior to his 17 years in academia followed by his 6 years of additional practical experience since leaving his University position.<sup>1189</sup> We conclude that there is no indication that his representation of the electrical engineering community's position on transformers is inaccurate and that his assessment is relevant to determining whether these devices are "active" or "passive" as used in the context of this 10 C.F.R. Part 54 proceeding.

We further find that the description of transformer operations demonstrates that the physical properties of transformer parts do not change during operations, and, therefore, that the properties or state of the transformer do not change as electrical energy passes through it. We believe that this description is more reasonable than Entergy's position that voltage, current, and magnetism are not properties of the electrical energy but of the transformer itself. We find that transformer parts are the same prior to, during, and after being energized, similar to electrical cables that are designated "passive" components that do not change with the flow of electricity.

Consistent with this position, we also find that a change in voltage and current occurs not in the transformer parts, but in the characteristics of the energy passing through these components. Specifically, we find that a transformer does not generate the magnetism, but, instead, the magnetism is generated by the flow of electricity passing through the input electrical cable. The varying magnetism as it is passed into the primary winding is passively captured by the core of a transformer, which efficiently transfers the varying magnetism to the secondary side where it passively induces electrical current in the secondary coil that is connected to the output electrical cable.

Dr. Dobbs for Entergy also stated that transformers are "active" because of the change in state from idle to "active" when they are energized from an electrical source.<sup>1190</sup> We reject this position because to accept it would mean that all electrical devices be considered "active" because they change state when they are turned on. As will be discussed further in this decision, Dr. Dobbs' position is at odds with the list of passive components requiring AMR listed in 10 C.F.R. § 54.21(a)(1)(i).

In support of their position that a transformer acts in an "active" manner, the Applicant and the NRC Staff argue that electrons entering the transformer on the

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<sup>1187</sup> Tr. at 4442 (Dr. Degeneff for New York).

<sup>1188</sup> Tr. at 4450-51 (Dr. Dobbs for Entergy).

<sup>1189</sup> See Curriculum Vitae of Robert C. Degeneff (Ex. NYS000004).

<sup>1190</sup> Entergy NYS-8 Testimony at 11 (Ex. ENTR00091).

primary side are not the same electrons exiting the transformer on the secondary side.<sup>1191</sup> We are not convinced of the relevance of the gap in electron flow to the demonstration that transformers perform “active” functions. Clearly, the fact that the exact same electrons would not appear in the output power from a transformer, as they would with the flow of electrons through an electrical cable, illustrates a difference between these two electrical components. But having said this, we find that there is no evidence supporting a causal relationship between the difference in electron output in cables and transformers and the relative activity associated with how these two components perform their intended function. Nor do we see how this fact is of any use in assessing the functional performance of a transformer — the topic that is covered in Section VI.H.

Summarizing, we find that the change in voltage, current, and magnetism within a transformer are properties of the electrical power flowing through a transformer, not the transformer itself. With no moving parts and no change in configuration, properties, or state, transformers should not be excluded from AMR by regulatory definition.<sup>1192</sup> But whether the performance and condition of transformers are readily monitorable relative to this change in electrical energy characteristics is discussed further in Section VI.H.

## **G. Monitoring for Gross Failure or Impending Failure**

### ***I. Evidence Related to the Monitoring for Gross Failure or Impending Failure***

The Commission has determined that it is possible to generically exclude “active” components from AMR, because, in part, these components have performance and condition characteristics that are readily monitorable.<sup>1193</sup> As accurately defined by New York witness Dr. Degeneff, performance monitoring tracks whether an SSC is performing its intended function (*i.e.*, assuring gross failure has not occurred), while condition monitoring is concerned with changes in performance with time (*i.e.*, trends) in order to predict failure.<sup>1194</sup> The Commission discusses this concept in its SOC:

The Commission believes that regardless of the specific aging mechanism, only aging degradation that leads to degraded performance or condition (*i.e.*, detrimental effects) during the period of extended operation is of principal concern for license renewal. Because the detrimental effects of aging are manifested in degraded

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<sup>1191</sup> Tr. at 4351, 4356 (Ms. Ray for the NRC Staff); Tr. at 4457-58 (Mr. Craig for Entergy).

<sup>1192</sup> See 10 C.F.R. § 54.21(a)(1)(i).

<sup>1193</sup> Statement of Considerations at 22,476 (Ex. NYS000016).

<sup>1194</sup> Tr. at 4248 (Dr. Degeneff for New York).

performance or condition, an appropriate license renewal review would ensure that licensee programs adequately monitor performance or condition in a manner that allows for the timely identification and correction of degraded conditions. . . .

When the Commission concluded that the proper approach for a license renewal review was one that focused on mitigating the detrimental effects of aging regardless of the mechanisms causing the effects, the intent was to concentrate efforts on identification of functional degradation . . . . Once functional degradation is identified through performance or condition monitoring, corrective actions can be applied.<sup>1195</sup>

In the context of addressing aging management of electrical cables, the SOC goes on to state that the Commission considered the need for monitoring functional degradation, expressing concern about the lack of methods that can provide the necessary information about the condition of a component as reflective of the extent of aging degradation on the component's remaining qualified life, stating the desire for continuous monitoring, and expressing concern about system failures that might be induced during accident conditions.<sup>1196</sup> Entergy witness Mr. Craig, stated that while the Commission raised these issues in the context of electrical cables, he believes that this is "an example that was intended to provide guidance to show the need to have a performance or condition monitoring . . . ."<sup>1197</sup>

There was no disagreement on this point between the parties. Dr. Degeneff stated that monitoring for impending failure is the required trait of an SSC to qualify as an "active" component excluded from AMR.<sup>1198</sup> He concluded that "the purpose of the license renewal rule is to prevent gross failure, not to detect it."<sup>1199</sup>

A witness for Entergy, Mr. Craig, agreed and testified that it is important to monitor the performance and condition of an SSC,<sup>1200</sup> with the caveat that the monitoring goal is to identify transformer degradation before failure rather than simply noting the ultimate failure of an SSC.<sup>1201</sup>

When questioned about whether the ability to detect gross failure is sufficient to exempt an SSC from AMR, Staff witness Ms. Ray testified that "the point is to track aging, not to necessarily detect the gross failure, but to detect continual aging of the component."<sup>1202</sup> She agreed that the "express concerns of the Commission

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<sup>1195</sup> Statement of Considerations at 22,469 (Ex. NYS000016).

<sup>1196</sup> *Id.* at 22,477-78.

<sup>1197</sup> Tr. at 4239 (Mr. Craig for Entergy).

<sup>1198</sup> *Id.*

<sup>1199</sup> New York NYS-8 Rebuttal Testimony at 38 (Ex. NYSR00414).

<sup>1200</sup> Tr. at 4223 (Mr. Craig for Entergy).

<sup>1201</sup> Tr. at 4231, 4232, 4234, 4245 (Mr. Craig for Entergy).

<sup>1202</sup> Tr. at 4243 (Ms. Ray for the NRC Staff).

all point to the need to monitor for degradation rather than just be cognizant of the complete failure when it occurred.”<sup>1203</sup>

## **2. *Findings Related to the Monitoring for Gross Failure or Impending Failure***

Consistent with the parties’ position, we find that the ability to detect incremental functional degradation (as opposed to gross failure) is the important criterion for an SSC to be considered “readily” monitorable. We find monitoring that only focuses on the present condition without providing sufficient information to realistically interpret what will happen in the future is of limited use in managing aging. As a consequence, we also find that those SSCs within the scope of 10 C.F.R. Part 54 that cannot be measured for trending data to predict impending failure could not realistically be considered to be “readily” monitorable.

## **H. Ability to Monitor Age-Related Functional Degradation of Transformers**

### **1. *Evidence Related to the Ability to Monitor Age-Related Functional Degradation of Transformers***

The Commission has determined that it is possible to generically exclude “active” components from AMR, because, in part, these components have performance and condition characteristics that are readily monitorable.<sup>1204</sup> Conversely, as the SOC states, “[t]he Commission has determined that passive structures and components for which aging degradation is not readily monitored are those that perform an intended function without moving parts or without a change in configuration or properties.”<sup>1205</sup> All parties agree that the fundamental reason that a device is considered “active” is that it is “readily monitorable” as a result of having moving parts or a change in configuration, properties, or states.<sup>1206</sup>

New York witness Dr. Degeneff testified that:

[a]ge related degradation in transformers will not be observable through changes in the operating characteristics of a transformer during its normal operation. Many kinds of age related degradation are undetectable without complex testing. If one were able to detect that a transformer were failing through monitorable changes in

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<sup>1203</sup> *Id.*

<sup>1204</sup> Statement of Considerations at 22,476 (Ex. NYS000016).

<sup>1205</sup> *Id.* at 22,477.

<sup>1206</sup> Tr. at 4225-27 (Mr. Craig for Entergy); Tr. at 4227-28 (Mr. Matthew for the NRC Staff); Tr. at 4229 (Dr. Degeneff for New York).

its performance, transformers would not fail because any prudent operator would replace them before they did. Instead, in many instances transformers operate within normal parameters until catastrophic failure occurs.<sup>1207</sup>

NRC Staff witness Ms. Ray disagreed. She testified that “with a transformer, there is a battery of tests that you can perform, to track the aging degradation,”<sup>1208</sup> and then specifically referenced the continuous monitoring of the output voltage and current.<sup>1209</sup> In response to the Board questions, Ms. Ray stated that monitoring voltage and current can give some indication of a problem, but other tests would be required to assess the condition of a transformer’s internal components.<sup>1210</sup> Mr. Mathew, witness for the NRC Staff, discussed alarms and devices that provide a warning if a transformer fails to function, but he could not identify any monitoring technique that could reliably indicate the condition of a transformer prior to failure.<sup>1211</sup>

Entergy’s witnesses stated that “the electrical and magnetic properties of a transformer change. These changes in electric and magnetic properties are integral to transformer operation, necessary for performance of the transformer’s intended function, and can be directly measured or observed.”<sup>1212</sup> Consistent with the NRC Staff’s position that aging degradation can be monitored by measuring the output condition, Entergy witnesses stated that “[a] change in transformer properties can be observed via directly measurable changes in the transformer terminal voltages and currents.”<sup>1213</sup>

New York witness Dr. Degeneff, while not disagreeing that the output voltage and current can be continuously monitored, testified that he believes tracking these parameters at the output terminals only indicates the transformer’s performance (i.e., whether it is working), without providing any information on a transformer’s condition (i.e., incremental or functional degradation).<sup>1214</sup> As noted in the previous section, in Dr. Degeneff’s opinion, “it is the failure that is readily apparent, not the degradation.”<sup>1215</sup> Dr. Degeneff further stated that:

[t]he vast majority of age related degradation in a transformer cannot be observed based on changes in electrical performance. For example, the insulation integrity of

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<sup>1207</sup> New York NYS-8 Testimony at 29 (Ex. NYSR00003).

<sup>1208</sup> Tr. at 4377-78 (Ms. Ray for the NRC Staff).

<sup>1209</sup> Tr. at 4378-79 (Ms. Ray for the NRC Staff).

<sup>1210</sup> Tr. at 4448 (Ms. Ray for the NRC Staff).

<sup>1211</sup> Tr. at 4409-11 (Mr. Mathew for the NRC Staff).

<sup>1212</sup> Entergy NYS-8 Testimony at 11 (Ex. ENTR00091).

<sup>1213</sup> *Id.* at 36.

<sup>1214</sup> New York NYS-8 Rebuttal Testimony at 36-39 (Ex. NYSR00414).

<sup>1215</sup> *Id.* at 39.

a transformer's winding structure cannot be determined by monitoring a change in the electrical performance, because the dielectric strength of the insulation may not be affected until the transformer fails.<sup>1216</sup>

Dr. Degeneff went on to state that several other transformer failure modes cannot readily be detected during operation, including short circuiting, polymerization, diminished mechanical and structural integrity of the core and coil assembly, and deformation of the coil windings.<sup>1217</sup>

Entergy and the NRC Staff provided testimony on numerous monitoring techniques that can be used, and are being used, as part of Entergy's CLB to monitor the performance and condition of its transformers. In addition to monitoring the input and output electrical characteristics (i.e., voltage and current), according to the Staff's 1997 Grimes Letter:

[a]ny degradation of the transformer's ability to perform its intended function is readily monitorable by a change in the electrical performance of the transformer and the associated circuits. Trending electrical parameters measured during transformer surveillance and maintenance such as Doble test results, and advanced monitoring methods such as infrared thermography, and electrical circuit characterization and diagnosis provide a direct indication of the performance of the transformer. Therefore, transformers are not subject to an aging management review.<sup>1218</sup>

Entergy's witnesses testified that the Applicant uses industry standard preventive and predictive maintenance techniques on its large oil-filled transformers for both offline and online monitoring for assessment of transformer performance and condition.<sup>1219</sup> Specifically, Entergy witnesses Mr. Rucker and Mr. McCaffrey stated that the “[s]pecific details of IPEC large power transformer inspection and maintenance practices are contained in [*Large Power Transformer Inspection Guidelines*, an Entergy Fleet Engineering Guide].”<sup>1220</sup> The Applicant’s witnesses further stated that an IPEC maintenance document entitled “Station or Unit Auxiliary Transformer Annual In-Service Inspection” is an “example of an IPEC-specific procedure detailing in-service inspection activities for certain large oil-filled transformers.”<sup>1221</sup>

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<sup>1216</sup> New York NYS-8 Testimony at 29-30 (Ex. NYSR00003).

<sup>1217</sup> *Id.* at 29-33.

<sup>1218</sup> Grimes Letter at 2 (Ex. ENT000097).

<sup>1219</sup> Entergy NYS-8 Testimony at 97 (Ex. ENTR00091).

<sup>1220</sup> *Id.* (citing Entergy Fleet Engineering Guide EN-EG-G-001, Large Power Transformer Inspection Guidelines, Rev. 2 (Mar. 2011) (Ex. ENT000121)).

<sup>1221</sup> *Id.* (citing IPEC Maintenance Procedure 0-XFR-407-ELC, Rev. 0, Station or Unit Auxiliary Transformer Annual In-Service Inspection (May 18, 2007) (Ex. ENT000124)).

Entergy witness Mr. McCaffrey testified that the electronic tests performed during a refueling outage (generally a 2-year cycle)<sup>1222</sup> or when a transformer is out of service include power factor, capacitance, hot collar, excitation current, leakage current, transformer turns ratio, and winding resistance, and that these tests give some indication about the health of the major subcomponents inside a transformer.<sup>1223</sup> According to Mr. McCaffrey, other tests performed offline include sweep frequency response analysis, insulation resistance, visual inspections, and cleaning.<sup>1224</sup> Mr. McCaffrey also stated that dissolved gas analysis (DGA), oil quality, furanic oil compound analysis, and thermography testing are done while the transformer is in service, while a corona scan is done while the transformer is energized.<sup>1225</sup> Of these tests, NRC Staff witness Mr. Mathew noted that oil analysis, the Doble test, and the power factor test are used for condition monitoring.<sup>1226</sup>

According to Mr. McCaffrey and Mr. Rucker for Entergy, “[p]redictive maintenance results are monitored and trended to identify degrading conditions within transformers.”<sup>1227</sup> They went on to state that Entergy has used these results to develop the “Indian Point Energy Center Large Power Transformer Life Cycle Management Plan.”<sup>1228</sup> These witnesses testified that the plan, which is updated as necessary (based on operating experience and changing plant conditions) to ensure that the transformer monitoring strategies at IPEC remain valid, “provides reasonable assurance that the transformers operate satisfactorily” without in-service failure until their estimated replacement date.<sup>1229</sup>

The Applicant’s witnesses also testified that Entergy “performs predictive and preventive maintenance on dry-type transformers, including visual inspections/cleaning, insulation resistance measurement, and winding resistance measurement.”<sup>1230</sup> For example, “Station Service and Load Center Transformers Outage Inspection” is “a plant procedure governing outage-related inspection and maintenance activities for dry type transformers.”<sup>1231</sup> Mr. McCaffrey testified that some of the tests have been performed on transformers at Indian Point under the

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<sup>1222</sup> Tr. at 4264 (Mr. McCaffrey for Entergy).

<sup>1223</sup> Tr. at 4253 (Mr. McCaffrey for Entergy).

<sup>1224</sup> Tr. at 4254 (Mr. McCaffrey for Entergy).

<sup>1225</sup> *Id.*

<sup>1226</sup> Tr. at 4249 (Mr. Mathew for the NRC Staff).

<sup>1227</sup> Entergy NYS-8 Testimony at 97 (Ex. ENTR00091).

<sup>1228</sup> *Id.* at 97-98 (citing Indian Point Energy Center Large Power Transformer Life Cycle Management Plan (2011) (Ex. ENT000125)).

<sup>1229</sup> *Id.* at 98.

<sup>1230</sup> *Id.*

<sup>1231</sup> *Id.* (citing IPEC Maintenance Procedure 0-XFR-401-ELC, Station Service and Load Center Transformers Outage Inspection (Apr. 5, 2007) (Ex. ENT000126)).

maintenance plan for many years and new tests “have been coming on as the technology has evolved and the industry has accepted these practices.”<sup>1232</sup>

In Dr. Degeneff’s opinion, however, many of the tests identified as being used to determine transformer degradation are limited because they must be conducted while the transformer is offline, including the test for aging effects of cellulose insulation, some of the dissolved gas analyses in the transformer’s oil, and the test for mechanical integrity of the core and coils (which requires physical inspection of the transformer).<sup>1233</sup> He expressed his opinion that “[i]t is unrealistic to represent that the aging condition of a transformer can be ascertained while the transformer is in operation.”<sup>1234</sup> According to Dr. Degeneff, his major issues with Entergy’s current program are the frequency of the monitoring and evaluation, and the lack of commitment to update the program as better mechanisms and methods for measuring the health of transformers are developed.<sup>1235</sup>

While the goals of Entergy’s existing monitoring program are to track the health of the transformers, Entergy witnesses recognized that the industry cannot identify all the failure mechanisms for transformers and prevent them from happening. But Entergy witness Mr. McCaffrey testified that the Applicant has incorporated the current industry practices to monitor transformer health into its preventive maintenance programs and is using that information to identify degrading trends.<sup>1236</sup>

Additionally, as part of Entergy’s effort to establish that transformers are not AMR-appropriate components, its witnesses discussed known transformer failures as an indication of the effectiveness of readily monitoring transformers. Entergy witness Mr. McCaffrey testified that transformers generally have a long service life, in the range of decades, but “the failure profile generally is a bathtub curve . . . [with] much higher failure rates in the first few years, and then “once it’s functioning, then it may function without incident for 20 years” followed by a period of increased failure rates with age.<sup>1237</sup> He further testified that most transformers fail because of the deterioration of the insulation surrounding the electrical wires in the winding coils,<sup>1238</sup> but could only recall three failures in the history of the plant.<sup>1239</sup> According to Mr. McCaffrey, the failures to date do not suggest such transformers should be managed under 10 C.F.R. Part 54.<sup>1240</sup>

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<sup>1232</sup> Tr. at 4256 (Mr. McCaffrey for Entergy).

<sup>1233</sup> New York NYS-8 Rebuttal Testimony at 39-40 (Ex. NYSR00414).

<sup>1234</sup> *Id.* at 40.

<sup>1235</sup> Tr. at 4297 (Dr. Degeneff for New York).

<sup>1236</sup> Tr. at 4255 (Mr. McCaffrey for Entergy).

<sup>1237</sup> Tr. at 4261 (Mr. McCaffrey for Entergy).

<sup>1238</sup> Tr. at 4275 (Mr. McCaffrey for Entergy).

<sup>1239</sup> Tr. at 4256 (Mr. McCaffrey for Entergy).

<sup>1240</sup> Entergy NYS-8 Testimony at 105 (Ex. ENTR00091).

In contrast, Dr. Degeneff stated that there have been a number of transformer failures at various power reactors, and listed eighteen instances in his report.<sup>1241</sup> Furthermore, he testified that, “[i]n the last five years, Entergy has experienced three major transformer failures,” and, according to EPRI’s calculations, the rate of failures in the nuclear industry increased from 4% in 1991 to about 16% in 2001.<sup>1242</sup> Dr. Degeneff pointed to an NRC 2009-2010 Information Notice that reads “[a] relatively high incidence of transformer failures has occurred in the last few years, the majority of which could have been avoided had the licensee fully evaluated and effectively implemented corrective actions and recommendations identified in industry operating experience.”<sup>1243</sup> He further stated that the “problem is not that failures aren’t preventable, but that such preventative measures are not requirements under the Part 50 regulations. Mandating an AMP for transformers would force licensees to take such additional steps.”<sup>1244</sup> He posited that “[a]lthough NRC staff generally believes that transformers do not need to be subject to aging management programs, these transformer failures underscore the need for the proper maintenance and aging management of transformers.”<sup>1245</sup>

For their part, NRC Staff witnesses noted that these failures were readily apparent, commenting that sometimes the failure was accompanied by an explosion and/or fire, both of which were obvious signs of distress.<sup>1246</sup> In other cited examples, they testified that the failure resulted in activation of alarms or reactor or turbine trips or reactor scrams. These NRC Staff witnesses concluded that “[t]he fact that these failures were readily apparent shows that transformers are active components, *i.e.*, components whose performance or functionality is readily apparent, readily observable, readily monitored and directly verified.”<sup>1247</sup>

As previously mentioned, Entergy witness Mr. McCaffrey testified that only a few transformers have failed at Indian Point.<sup>1248</sup> Two IP3 transformers failed — one shortly after plant startup and another in 2007.<sup>1249</sup> Mr. McCaffrey stated that the 2007 event (identified in NRC Information Notice 2009-10) was related to a fault that occurred in the IP3 No. 31 main step-up transformer — a large

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<sup>1241</sup> Report of Dr. Robert C. Degeneff in Support of Contention NYS-8 (Dec. 12, 2011) at 18-22 (Ex. NYS000005).

<sup>1242</sup> Tr. at 4299 (Dr. Degeneff for New York) (referring to EPRI, Life Cycle Management Planning Sourcebooks, Vol. 4: Large Power Transformers (Ex. NYS00034)).

<sup>1243</sup> NRC Information Notice 2009-10, Transformer Failures-Recent Operating Experience (July 7, 2009) at 2 (Ex. NYS000019); *see also* New York NYS-8 Rebuttal Testimony at 34 (Ex. NYSR00414).

<sup>1244</sup> New York NYS-8 Rebuttal Testimony at 34-35 (Ex. NYSR00414).

<sup>1245</sup> Report of Dr. Robert C. Degeneff in Support of Contention NYS-8 (Dec. 12, 2011) at 17 (Ex. NYSR00005).

<sup>1246</sup> NRC Staff NYS-8 Testimony at 24 (Ex. NRC000031).

<sup>1247</sup> *Id.*

<sup>1248</sup> Tr. at 4256 (Mr. McCaffrey for Entergy).

<sup>1249</sup> Tr. at 4259 (Mr. McCaffrey for Entergy).

oil-filled transformer that is within the scope of the maintenance rule.<sup>1250</sup> In accord with the maintenance rule, Entergy conducted a root-cause analysis and instituted significant corrective actions in response to the event, which Entergy's witnesses attributed to a design flaw in the transformer Phase B bushing, and not the effects of aging on the transformer.<sup>1251</sup> Mr. McCaffrey went on to state that there is no online testing that can be done to determine the health of a bushing.<sup>1252</sup>

New York witness Dr. Degeneff disagreed with this assessment. He testified that the bushing was about 31 years old when it failed and when it was last inspected 6 years before failure, the wear was deemed to be high but acceptable.<sup>1253</sup> Dr. Degeneff stated that Entergy was well aware of the historical performance of this bushing because the Applicant's report on aging noted that this type of bushing exhibits slow degradation that leads to an eventual failure.<sup>1254</sup> Furthermore, Dr. Degeneff noted that, in a Staff document, the Staff criticized Entergy for not addressing the condition of this bushing.<sup>1255</sup>

Entergy's witnesses also acknowledged that another transformer-related event occurred in November 2010 with a main transformer at IP2 (another large oil-filled transformer that is within scope of the maintenance rule) as a result of the failure of main transformer Phase B bushing.<sup>1256</sup> As with the 2007 failure, Entergy performed a root-cause evaluation, which determined that this transformer failed even though (1) appropriate maintenance testing and analyses (e.g., Doble testing and physical inspections) had been performed on the transformer prior to the event with no adverse trends or abnormalities; (2) the bushing had a good operating history and had no indications of degradation during predictive monitoring; and (3) there were no known operating deficiencies associated with these bushings supplied by the transformer vendor when the main transformer was installed in 2006.<sup>1257</sup> An independent failure analysis of the bushing concluded that the bushing failure was due to a design/manufacturing weakness.<sup>1258</sup> Related corrective actions at IPEC included replacing the affected main transformer bushings and increasing

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<sup>1250</sup> Tr. at 4449 (Mr. McCaffrey for Entergy).

<sup>1251</sup> Entergy NYS-8 Testimony at 105 (Ex. ENTR00091).

<sup>1252</sup> Tr. at 4283 (Mr. McCaffrey for Entergy).

<sup>1253</sup> Tr. at 4437 (Dr. Degeneff for New York).

<sup>1254</sup> Tr. at 4437-38 (Dr. Degeneff for New York) (referencing EN Large Power Transformer Status at 1 (Ex. NYS000040)).

<sup>1255</sup> Tr. at 4438 (Dr. Degeneff for New York) (noting Indian Point Nuclear Generating Unit 3 — NRC Integrated Inspection Report 05000286/2007003 (Aug. 8, 2007) at iii (Ex. ENTR00347)).

<sup>1256</sup> Entergy NYS-8 Testimony at 106 (Ex. ENTR00091).

<sup>1257</sup> *Id.*

<sup>1258</sup> *Id.*

the frequency of electrical testing of the main transformers from every 4 years to every 2 years.<sup>1259</sup>

Additionally, in Table 4 attached to Entergy’s written testimony, Entergy’s witnesses responded to Dr. Degeneff’s concerns regarding the monitoring of age-related degradation in transformers by listing the “means by which Entergy addressed alleged concerns at IPEC” for each of the “aging mechanisms or other concerns identified by Dr. Degeneff.”<sup>1260</sup>

Dr. Degeneff responded that this Entergy information does not address the potential that age-related degradation will go unnoticed in transformers at Indian Point.<sup>1261</sup> He opined that the transformer failure rate across the country shows performance monitoring is not adequate to maintain transformer functionality, because most of the transformer failure modes do not affect transformer operating performance until the transformer actually fails.<sup>1262</sup> Therefore, according to Dr. Degeneff, “the performance monitoring outlined in Table 4 . . . is insufficient to maintain the functionality of aging transformers.”<sup>1263</sup> He also testified that Table 4 refutes Entergy’s and the Staff’s claim that age-related degradation in transformers is readily monitored, because Entergy’s experts admit that there are “conditions that may require the transformer oil to be drained so that a physical inspection of the transformer’s internal structure can be conducted.”<sup>1264</sup> In Dr. Degeneff’s opinion, “[t]his shows that the transformer’s ability to perform its intended function is not monitored solely by a change in the electrical performance of the transformer.”<sup>1265</sup>

## ***2. Findings Related to the Ability to Monitor Age-Related Functional Degradation of Transformers***

By regulation an SSC is excluded from AMR by either (1) containing moving parts or having a change in configuration or properties as defined by 10 C.F.R. § 54.21(a)(1)(i); or (2) by having a change of state and being readily monitorable as stated in the SOC for the 1995 revisions to the 10 C.F.R. Part 54 rules. In Section VI.F, we addressed the first of these two exclusion criteria and found that the changes in voltage, current, and magnetism are not associated with changes in the properties or state of a transformer as claimed by Entergy and the NRC Staff, but instead are changes in the characteristics of the electrical energy passing

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<sup>1259</sup> *Id.*

<sup>1260</sup> *Id.* at 102-04.

<sup>1261</sup> New York NYS-8 Rebuttal Testimony at 41-43 (Ex. NYSR00414).

<sup>1262</sup> *Id.*

<sup>1263</sup> *Id.* at 42.

<sup>1264</sup> *Id.* at 43.

<sup>1265</sup> *Id.*

through this device. We now address whether a transformer's traits are "readily monitorable."

As described above, both Entergy and the NRC Staff assert that the change in transformer properties can be easily and continuously monitored directly by measuring the terminal voltages and currents.<sup>1266</sup> We agree that output voltage and current can be continuously monitored and would indicate gross failure of the transformer, as would waiting for alarms, explosions, or fires as suggested by the Staff.<sup>1267</sup> But, in order for a transformer to be considered "readily monitorable," consistent with the direction provided by the Commission in its SOC,<sup>1268</sup> a transformer would have to be susceptible to monitoring for incremental (i.e., functional) degradation.<sup>1269</sup> We find that neither Entergy nor the Staff was able to refute New York's position that age-related degradation of a transformer is not "monitorable" in that it will not be reflected in any noticeable change to the electrical characteristics of transformer operations and that, over time, this lack of trending data can lead to an unforeseen transformer failure.

We thus agree with Dr. Degenef that "[t]he presence of certain age-related degradation that can cause failure and is undetectable by performance monitoring is the very reason why an AMP is necessary for transformers."<sup>1270</sup> We further find that monitoring voltage, current, and magnetism within a transformer is not effective in monitoring the functional degradation of this component as it ages during the PEO.

Beyond measuring voltage and current at the output terminals, numerous other tests and assessments are available to monitor the performance and condition of a transformer, and have been incorporated into the current preventive maintenance programs developed by Entergy. In its 1997 position paper, the Staff discusses the trending of "electrical parameters measured . . . [from] Doble test results, and advanced monitoring methods such as infrared thermography, and electrical circuit characterization and diagnosis."<sup>1271</sup> But the Grimes Letter does not provide any technical quantification or justification regarding the actual success of these trending analyses in providing any indicators that might be useful in predicting

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<sup>1266</sup> While the energy through a transformer is converted from electrical to magnetic and back to electrical, there was no evidence presented to suggest that the changes in the magnetism could be measured to readily monitor the condition of this device to predict the timing of component failure. Nor did the parties provide any indication that measuring the difference in electrons between the primary and secondary coils was feasible or, in the unlikely event it was, that the resulting information would provide any meaningful monitoring data.

<sup>1267</sup> NRC Staff NYS-8 Testimony at 24 (Ex. NRC000031).

<sup>1268</sup> Statement of Considerations at 22,476, 22,477-78 (Ex. NYS000016).

<sup>1269</sup> Tr. at 4223, 4231, 4232, 4234, 4245 (Mr. Craig for Entergy); Tr. at 4243 (Ms. Ray for the NRC Staff).

<sup>1270</sup> New York NYS-8 Rebuttal Testimony at 39 (Ex. NYSR00414).

<sup>1271</sup> Grimes Letter at 2 (Ex. ENT000097).

the impending failure of a transformer. Further, we find that Entergy and the NRC Staff did not provide evidence sufficient to establish that these alternative tests would be successful in consistently tracking the progressive degradation of transformers so as to make these components “monitorable.”

Nor has Entergy established that its use of other monitoring techniques could track the allegedly “active” functions of its transformers. For instance, Entergy witness Mr. McCaffrey admitted that the majority of transformer failures are related to the degradation of the insulation surrounding the electrical wires of the winding coils.<sup>1272</sup> Consistent with the thorough discussion in the SOC regarding the challenges in monitoring electrical cables, we find that there has been no persuasive evidence proffered in this proceeding that any of these other tests will effectively monitor for impending failure of a transformer. The lack of proven techniques for measuring the trend in functional degradation further reinforces our conclusion that transformers are “passive” devices.

To be sure, detailed corporate programs and plant-specific procedures have been developed for IPEC by Entergy and incorporated into its CLB to track transformer performance.<sup>1273</sup> And while these programs are based on the current knowledge of industry practice, we find that Entergy’s and the NRC Staff’s testimony does not demonstrate the effectiveness of these tests and assessments in detecting impending transformer failures. As such, these unproven techniques fall short of establishing that transformers can be “readily monitored.”<sup>1274</sup>

We also find that the service life of transformers provides further support for making these SSCs subject to AMR. Regardless of the failure rate to date, according to Entergy’s witness Mr. McCaffrey, the service life of transformers is in the range of decades, not years.<sup>1275</sup> Therefore, it seems reasonable to us that the likely time for accelerated transformer failures may well occur during the PEO,

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<sup>1272</sup> Tr. at 4275 (Mr. McCaffrey for Entergy).

<sup>1273</sup> These procedures include: Large Power Transformer Inspection Guidelines, Entergy’s Fleet Engineering Guide EN-EG-G-001, Rev. 2 (Mar. 2011) (Ex. ENT000121); Station or Unit Auxiliary Transformer Annual In-service Inspection, IPEC Maintenance Procedure 0-XFR-407-ELC, Rev. 0 (May 2007) (Ex. ENT000124); Indian Point Energy Center Large Power Transformer Life Cycle Management Plan, 2011 (Ex. ENT000125).

<sup>1274</sup> While transformer failures at IPEC have been infrequent, the NRC Staff was concerned enough about the industry-wide failure rates of transformers to issue an Information Notice in 2009 to alert the industry about the relatively high incidence of failures that, in their opinion, could have been avoided for the most part had the operator fully evaluated and effectively implemented corrective actions and recommendations identified in industry operating experience. NRC Information Notice 2009-10, Transformer Failures — Recent Operating Experience (July 7, 2009) at 2 (Ex. NYS000019). We note that review of industry “Operating Experience” and “Corrective Actions” are two of the required ten elements of an effective aging management program.

<sup>1275</sup> Tr. at 4261 (Mr. McCaffrey for Entergy).

enhancing the need for adequate aging management during the license renewal period.

At the same time, we recognized, as mentioned above, that Entergy has developed and implemented detailed programs and procedures as part of its CLB to track the operational performance of transformers using the current state of practice in the industry. Based on the testimony of Mr. McCaffrey, we find that some of the tests have been performed on transformers at Indian Point under the maintenance plan for many years and new ones have been added to reflect current technology and industry acceptance.<sup>1276</sup> Entergy's predictive maintenance results (monitored and trended to identify degrading conditions within transformers) are summarized in *Indian Point Energy Center Large Power Transformer Life Cycle Management Plan*.<sup>1277</sup> Although the Applicant has conceded that the industry cannot identify all the failure mechanisms for transformers and prevent them from happening, we find that Entergy has incorporated the current industry practices to monitor transformer health into its preventive maintenance programs and is using that information to identify degrading trends.<sup>1278</sup>

We thus concur with Entergy's witnesses who believe that their plan, combined with the corporate fleet-wide programs and plant-specific procedures, provides some degree of assurance that the transformers will operate satisfactorily until the planned replacement date of the transformers, and that these programs and plans are updated as necessary. For example, as New York witness Dr. Degeneff testified, the IP2 main transformers were replaced in 2006 based on the results of the life-cycle management program.<sup>1279</sup> While these particular transformers are not within the scope of license renewal, nonetheless deployment of this same corrective measure could take place with the station auxiliary transformers that are within scope of license renewal, and also fall under the maintenance rule of the CLB. Based on this, we believe that these same programs and procedures would, if adopted into an AMP, go a long way toward demonstrating that the effects of transformer aging would be adequately managed for the PEO. But no AMP currently exists to be modified and implemented to track aging degradation of transformers.

In summary, while transformer operation can readily be monitored for gross failure by measuring the output voltage and current, there is no evidence that these values are useful in effectively tracking the incremental degradation of a transformer and providing trending data needed to predict its future life — actions that are required in aging management to implement corrective actions

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<sup>1276</sup> Tr. at 4256 (Mr. McCaffrey for Entergy).

<sup>1277</sup> Entergy NYS-8 Testimony at 97-98 (Ex. ENTR00091) (citing Indian Point Energy Center Large Power Transformer Life Cycle Management Plan (2011) (Ex. ENT000125)).

<sup>1278</sup> Tr. at 4255 (Mr. McCaffrey for Entergy).

<sup>1279</sup> Tr. at 4276 (Dr. Degeneff for New York).

before there is a complete loss of the intended function of this component. We find therefore that monitoring for only gross failure does not adequately manage the effects of aging through the PEO. The lack of ability to readily monitor transformers for impending failure requires additional review at time of license renewal. While the existing procedures and plans that are already in place for meeting the maintenance rule during operations are unproven to date, they would likely provide considerable assistance in tracking aging management of IPEC's transformers through the PEO if incorporated into an AMP.

## **I. Similarities with SSCs Included in or Excluded from AMR by Regulation**

As we noted previously, the regulations provide non-exclusive examples of those structures and components that are subject to AMR<sup>1280</sup> and those that are excluded from this review.<sup>1281</sup> Because transformers are not listed in either group, we asked the parties to compare transformers to selected components from each group to support their arguments for designating the correct classification for transformers. The evidence submitted for these comparisons and our findings are summarized as follows.

### ***1. Evidence Related to the Similarities with SSCs Included in or Excluded from AMR by Regulation***

#### ***a. General Statements***

In the Grimes Letter, the NRC Staff compared the similarity of transformers to the examples of components explicitly excluded from AMR in 10 C.F.R. Part 54 relative to how the performance of their intended functions would be achieved and whether aging degradation of these components could be readily monitored.<sup>1282</sup> Therein, the NRC Staff concluded that “[t]ransformers perform

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<sup>1280</sup> Structures and components considered “passive” and designated as subject to AMR include reactor vessel, the reactor coolant system pressure boundary, steam generators, the pressurizer, piping, pump casings, valve bodies, the core shroud, component supports, pressure-retaining boundaries, heat exchangers, ventilation ducts, the containment, the containment liner, electrical and mechanical penetrations, equipment hatches, seismic Category I structures, electrical cables and connections, cable trays, and electrical cabinets. See 10 C.F.R. § 54.21(a)(1)(i).

<sup>1281</sup> Structures and components considered “active” and designated as excluded from AMR include “pumps (except casing), valves (except body), motors, diesel generators, air compressors, snubbers, the control rod drive, ventilation dampers, pressure transmitters, pressure indicators, water level indicators, switchgears, cooling fans, transistors, batteries, breakers, relays, switches, power inverters, circuit boards, battery chargers, and power supplies.” 10 C.F.R. § 54.21(a)(1)(i).

<sup>1282</sup> See Grimes Letter at 1-4 (Ex. ENT000097).

their intended function through a change in state similar to switchgear, power supplies, battery chargers, and power inverters, which have been excluded [by 10 C.F.R.] § 54.21(a)(1)(i) from an aging management review.”<sup>1283</sup> As we noted previously, no technical justification was provided in the Grimes Letter explaining how the NRC Staff arrived at this conclusion, nor did the NRC Staff point out any dissimilarities between transformers and the other components listed in the regulations that do not have a change in state and require AMR as passive components.

In support of this contention, however, New York witness Dr. Degeneff stated that, because of their allegedly “passive” “characteristics, transformers are more similar to pipes, electrical cables and other components for which an AMP is required than they are to components like transistors and batteries for which an AMP is not required.”<sup>1284</sup> According to Dr. Degeneff, this is because a transformer changes the electrical energy passing through it just as many of the “included components change the ‘properties’ of the fluids, electric power, or fuel that travel through or are contained within those structures and components.”<sup>1285</sup> He testified that the “‘properties’ of the included structures and components, themselves, do not [change] during their intended use” and that “transformers may have service lives exceeding 60 years, like many of the ‘included’ components.”<sup>1286</sup> As discussed in the previous section, Dr. Degeneff concluded that the intended functions of transformers cannot be monitored online, which places them in the list of structures requiring AMR.<sup>1287</sup>

Entergy’s and the NRC Staff’s witnesses disagreed with New York’s position and discussed the differences and similarities between transformers and the components listed in 10 C.F.R. § 54.21(a)(1)(i) that, in their opinion, demonstrate that transformers align more closely with those components that are excluded from AMR (i.e., “active” components). The witnesses supported their position with a discussion comparing transformers with electrical cables (requiring AMR), piping (requiring AMR), and transistors (excluded from AMR). They also compared transformers to steam generators, reactor pressure vessels, heat exchangers, batteries, power invertors, power supply, circuit breakers, and battery chargers, as summarized below.

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<sup>1283</sup> *Id.* at 2.

<sup>1284</sup> New York NYS-8 Testimony at 6-7 (Ex. NYSR00003).

<sup>1285</sup> *Id.* at 17.

<sup>1286</sup> *Id.*

<sup>1287</sup> New York NYS-8 Rebuttal Testimony at 40 (Ex. NYSR00414).

*b. Comparison with Electrical Cables*

Dr. Degeneff testified that the flow of power through a transformer is similar to the flow of power through an electrical cable and, consistent with an electrical cable, a transformer should be considered a “passive” component requiring AMR.<sup>1288</sup> He stated that “electrical cables and transformers can be represented by exactly the same system of equations, and they perform essentially the same way.”<sup>1289</sup> He further opined that transformers are simply two current-carrying cables adjacent to each other.<sup>1290</sup> He also stated that “[t]he physical laws that describe how the magnetic field is developed around a cable are exactly the same physical laws that describe how a magnetic field is developed in a transformer.”<sup>1291</sup> Moreover, according to Dr. Degeneff, “NRC Staff’s experts agreed that two cables can function as a simple transformer.”<sup>1292</sup>

While magnetic fields generated around the cable vary and the magnitude and phase of the currents through the cable and voltages across it may change, Dr. Degeneff indicated that “the physical properties of the cable (e.g., conductor shape, material composition of the cable, cable insulation, and the resultant resistance capacitance per unit length) are not designed to change.”<sup>1293</sup> He stated that transformers and cables are similar in that “both conduct power from one place to another . . . [b]ut neither the cable nor the transformer changes its state or changes its configuration.”<sup>1294</sup> And he further testified that the same tests that Entergy and the NRC Staff declared can be used to actively monitor transformers could also be used on cables if desired, but cables nonetheless are still classified as “passive” devices.<sup>1295</sup>

Entergy witness Dr. Dobbs testified that he agreed with Dr. Degeneff’s statement to the extent that the same laws apply to both cables and transformers, but that he disagreed with Dr. Degeneff’s broad-brush analogy between electrical cables and transformers, and the implication that both should be classified as “passive” components under 10 C.F.R. Part 54.<sup>1296</sup> According to Dr. Dobbs, “[t]wo wires or cables in proximity to one another do *not* constitute a transformer in form or operation.”<sup>1297</sup> More specifically, Dr. Dobbs declared that

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<sup>1288</sup> New York NYS-8 Testimony at 6-7 (Ex. NYSR00003).

<sup>1289</sup> Tr. at 4379-80 (Dr. Degeneff for New York).

<sup>1290</sup> New York NYS-8 Testimony at 18-19 (Ex. NYSR00003).

<sup>1291</sup> *Id.* at 18.

<sup>1292</sup> New York NYS-8 Rebuttal Testimony at 21-22 (Ex. NYSR00414) (citing NRC Staff NYS-8 Testimony at 23 (Ex. NRC000031)).

<sup>1293</sup> New York NYS-8 Testimony at 18 (Ex. NYSR00003).

<sup>1294</sup> Tr. at 4380 (Dr. Degeneff for New York).

<sup>1295</sup> Tr. at 4381 (Dr. Degeneff for New York).

<sup>1296</sup> Entergy NYS-8 Testimony at 65-66 (Ex. ENTR00091).

<sup>1297</sup> *Id.* at 67 (emphasis in original).

[p]ower plant cables are routed in a way that minimizes such magnetic coupling. Any electromagnetic coupling between power cables is referred to as “crosstalk” or “noise” and is undesirable.

In contrast, the magnetic coupling in a transformer is maximized by design and transfers considerable power from the primary winding to the secondary winding.<sup>1298</sup>

Regarding the comparison between transformers and cables, NRC Staff witnesses testified that transformers are “different than passive components like electrical cables because cables perform their intended function (transmit power or signals) without a change in state, configuration, or properties and the effects of aging degradation for cables are not readily monitorable. In contrast, the effects of aging degradation on transformers are readily monitorable.”<sup>1299</sup> And while the Staff witnesses agreed with Dr. Degeneff that two cables in close proximity to each other can function as a simple transformer, they went on to declare that:

[such an] observation is not relevant to the question whether a transformer is an active or a passive component. Transformers perform their intended function through a change in state similar to batteries, transistors, battery chargers, switchgear, power supplies, and power inverters, which have been excluded in 10 C.F.R. § 54.21(a)(1)(i) from an aging management review.<sup>1300</sup>

And in support of the Staff’s view of the difference between transformers and cables, Ms. Ray testified further that “the purpose [of an electrical cable] is to transmit power, essentially voltage and current. But a transformer provides isolation, in addition to supplying voltage and current to a load . . . the voltage and current coming in is not the same as the voltage and current coming out.”<sup>1301</sup>

In response to the NRC Staff witnesses’ assertion that the similarities between cables and transformers are not relevant to the question whether a transformer is an “active” or “passive” component, Dr. Degeneff maintained that the similarities are very relevant for this inquiry, because “the same elements that make it difficult to detect functional degradation in cables also make it difficult to detect functional degradation in transformers.”<sup>1302</sup> Dr. Degeneff also declared that the aging effects for both cables and transformers are difficult to detect because of embrittlement of the insulation, but noted that “[t]he concern with both is exactly the same — as the insulation embrittles and degrades, the component’s ability to withstand

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<sup>1298</sup> *Id.*

<sup>1299</sup> NRC Staff NYS-8 Testimony at 21 (Ex. NRC000031).

<sup>1300</sup> *Id.* at 23.

<sup>1301</sup> Tr. at 4377 (Ms. Ray for the NRC Staff).

<sup>1302</sup> New York NYS-8 Testimony at 22-23 (Ex. NYS000003).

electrical stress decreases.”<sup>1303</sup> According to Dr. Degeneff, “[t]his decrease cannot be observed in the electrical performance of the transformer or the cable, and left undetected will lead to catastrophic insulation failures.”<sup>1304</sup>

*c. Comparison with Piping*

Dr. Degeneff also testified that he believes the flow of power through a transformer is similar to the flow of water in a pipe and, consistent with piping, should be considered a “passive” component requiring AMR.<sup>1305</sup> He stressed that, like the voltage of the power flowing through a transformer, the properties of fluids in a pipe (including temperature, pressure, velocity, viscosity, and density, among others) do change.<sup>1306</sup> He stated that “[t]he phase of the fluid in a pipe may even change. Yet, a pipe itself is a component which is included within the scope of § 54.21(a)(1).”<sup>1307</sup>

According to Dr. Degeneff, “[t]he pipe itself is not designed to change its own properties. In fact, if the pipe’s properties changed it would present significant engineering and design problems.”<sup>1308</sup> He testified that this is the same situation with transformers in that:

power merely passes through a transformer. It is the unchanging physical properties of the transformer that cause that power to change voltage at a ratio determined by the transformer’s unchanging design properties. Different amounts of power may be applied to a transformer, but the voltage will always change at the same ratio, because the unchanging properties of the transformer dictate only one turns ratio.<sup>1309</sup>

In response, Entergy witness Dr. Dobbs testified that the change in voltage, current, and the development of magnetism within a transformer are properties of the transformer, a corollary that does not pertain to pressure and flow in relation to water.<sup>1310</sup> According to Dr. Dobbs:

[p]ressure and flow are attributes associated with, but not properties of, water. . . . [A] property is something that is inherent in the object. Neither pressure nor flow

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<sup>1303</sup> *Id.* at 24.

<sup>1304</sup> *Id.*

<sup>1305</sup> *Id.* at 18.

<sup>1306</sup> *Id.*

<sup>1307</sup> *Id.* at 18-19.

<sup>1308</sup> *Id.* at 19.

<sup>1309</sup> *Id.*

<sup>1310</sup> Entergy NYS-8 Testimony at 32, 71 (Ex. ENTR00091).

is inherent to water. If water is not acted upon by some external force, then it has neither pressure nor flow.<sup>1311</sup>

He concluded that “pressure and flow are *not* properties of water; they result from outside forces acting on the water. Similarly, electricity is charge. It has no voltage or current unless it is acted on by some outside force.”<sup>1312</sup>

Dr. Dobbs also testified that the SOC specifically stated that a pressure-retaining boundary is a “passive” function.<sup>1313</sup> As a result, he declared the characteristics of all fluid-type components such as piping cannot be considered in this argument because these components are already excluded from AMR by their pressure-retaining characteristic.<sup>1314</sup>

In rebuttal, Dr. Degeneff suggested that Dr. Dobbs presented an inconsistent argument on what constitutes a property of an object.<sup>1315</sup> Noting that Dr. Dobbs asserted that pressure and flow are not properties of fluid because they result from outside forces acting on the fluid,<sup>1316</sup> and that a magnetic field is a property of the transformer, despite Dr. Dobbs’ admission that the magnetic field is caused by an external force acting on the transformer,<sup>1317</sup> Dr. Degeneff declared this characterization of property is incorrect. According to him, “[p]ressure and flow are properties of fluid, not properties of a pipe. Furthermore, if these were properties of the pipe, the pipe would be considered an active component, which it is not.”<sup>1318</sup> He went on to testify that the flow of power through a transformer is directly analogous to the flow of water through a pipe,<sup>1319</sup> stating that they are modeled by similar equations.<sup>1320</sup> This, he declared, supports his conclusions that the current flowing through a transformer is analogous to the velocity of flow through a pipe and that the turns ratio in a transformer is analogous to the relationship between the area of a pipe’s at intake and the area of a pipe’s exit point.<sup>1321</sup>

In an effort to further support his opinion that the flow of electrical energy through transformers performs differently than the flow of water through piping, Dr. Dobbs for Entergy stated “[t]he fields of fluid dynamics and electromag-

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<sup>1311</sup> *Id.* at 32.

<sup>1312</sup> *Id.* at 69 (emphasis in original).

<sup>1313</sup> Tr. at 4405 (Dr. Dobbs for Entergy).

<sup>1314</sup> Tr. at 4405-06 (Dr. Dobbs for Entergy).

<sup>1315</sup> New York NYS-8 Rebuttal Testimony at 24 (Ex. NYSR00414).

<sup>1316</sup> Entergy NYS-8 Testimony at 69 (Ex. ENTR00091).

<sup>1317</sup> *Id.* at 35.

<sup>1318</sup> New York NYS-8 Rebuttal Testimony at 24 (Ex. NYSR00414).

<sup>1319</sup> *Id.* at 24-26.

<sup>1320</sup> Tr. at 4406-07 (Dr. Degeneff for New York).

<sup>1321</sup> New York NYS-8 Rebuttal Testimony at 24-26 (Ex. NYSR00414).

netism . . . are governed by different physical laws and described by different mathematical equations.”<sup>1322</sup> He repeated this position in response to the Board’s questions at the evidentiary hearing.<sup>1323</sup> However, when queried about specific modeling equations that might overlap between the fields of fluid dynamics and electromagnetism, Dr. Dobbs admitted that he was not well versed in the field of fluid dynamics.<sup>1324</sup>

The NRC Staff’s witnesses testified that transformers are different than piping because piping performs its intended function without a change in state, configuration, or property while a transformer performs its intended function through a change in state.<sup>1325</sup> In addition, the Staff’s witnesses testified that “age-related degradation in the reactor vessel, containment, and piping is not readily monitorable and failure to perform their intended functions may not be readily monitorable, while failure of a transformer to perform its intended function and degradation are both readily monitorable.”<sup>1326</sup> The NRC Staff’s witnesses also declared that transformers are not like pipes because, while pipes may change the property of the fluid that travels through them, that is not a pipe’s primary function.<sup>1327</sup> This can be contrasted, according to the Staff’s witnesses, with the fact that “transformers cannot transport power . . . without changing the power, either changing current or voltage or both.”<sup>1328</sup>

In response to this argument, Dr. Degeneff stated that “electricity flowing through the transformer need not undergo a change during transformer operation,” and, in fact, would not do so if the turns ratio is 1 to 1 as is the case with transformers used in power quality applications to reduce electrical noise.<sup>1329</sup>

NRC Staff witnesses also testified that “[b]ecause its operation depends on electromagnetic induction between two stationary coils and a magnetic flux of changing magnitude and ‘polarity,’ transformers are necessarily active AC devices.”<sup>1330</sup> Therefore, the Staff’s witnesses concluded, “power transformers are active devices which do not require aging management review or an aging management program in accordance with 10 C.F.R. § 54.21(a)(1)(i).”<sup>1331</sup> The Staff’s witnesses did not, however, explain why and how the “activity” associated with an AC device, such as a transformer, could be used to monitor the aging

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<sup>1322</sup> Entergy NYS-8 Testimony at 72 (Ex. ENTR00091).

<sup>1323</sup> Tr. at 4402-03 (Dr. Dobbs for Entergy).

<sup>1324</sup> Tr. at 4403-05 (Dr. Dobbs for Entergy).

<sup>1325</sup> NRC Staff NYS-8 Testimony at 22 (Ex. NRC000031).

<sup>1326</sup> *Id.*

<sup>1327</sup> *Id.*

<sup>1328</sup> *Id.*

<sup>1329</sup> New York NYS-8 Rebuttal Testimony at 27 (Ex. NYSR00414).

<sup>1330</sup> NRC Staff NYS-8 Testimony at 23 (Ex. NRC000031).

<sup>1331</sup> *Id.*

effects of a transformer, nor did the Staff's witnesses clarify why this argument would not exclude all AC devices from AMR.

When discussing the difference between an allegedly "active" transformer and a designated "passive" piping, Staff witness Ms. Ray stated that, with piping, the fluid coming in is the same as the fluid coming out while the same is not so with the power flowing through a transformer.<sup>1332</sup> She also stated that, while the wall thickness of a pipe can be measured, a test is required while a transformer is continuously monitored for voltage and current.<sup>1333</sup>

*d. Comparison with Transistors*

Entergy's witnesses testified that a transistor is a three-terminal semiconductor device usually made of a single piece of silicon.<sup>1334</sup> They stated that a small external voltage is applied to one of the terminals to change the state of the silicon from one of resistance to one of conductivity.<sup>1335</sup> The SOC stated that a transistor can "change its state" and therefore should be considered as an "active" SSC.<sup>1336</sup> Entergy's witnesses stated that the operation of a transformer is similar to a transistor and that "the changing magnetism in the core of a transformer is analogous to the changing resistivity in a transistor."<sup>1337</sup>

The NRC Staff's witnesses testified that transistors can be easily monitored for performance.<sup>1338</sup> According to the Staff's witnesses, like transformers, gross failure of transistors is readily detectable during plant operation and both transformers and transistors are covered by existing monitoring and maintenance procedures. Accordingly, it is the Staff's view that transformers, like transistors, do not require an AMP to manage age-related degradation.<sup>1339</sup>

On behalf of New York, Dr. Degenef agreed that a transistor functions by altering its state to be either a conductor (i.e., when it is on) or a resistor with high impedance (i.e., when it is off), depending upon a triggering electrical current.<sup>1340</sup> But he disagreed with the Entergy witnesses concerning the change in state, testifying that "the characteristics and properties of the transformer do not change during its operation, *e.g.*, the size, weight, turns ratio, etc. do not change if

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<sup>1332</sup> Tr. at 4378-79 (Ms. Ray for the NRC Staff).

<sup>1333</sup> *Id.*

<sup>1334</sup> Entergy NYS-8 Testimony at 73-74 (Ex. ENTR00091).

<sup>1335</sup> *Id.*

<sup>1336</sup> Statement of Considerations at 22,477 (Ex. NYS000016).

<sup>1337</sup> Entergy NYS-8 Testimony at 75 (Ex. ENTR00091).

<sup>1338</sup> NRC Staff NYS-8 Testimony at 23 (Ex. NRC000031).

<sup>1339</sup> *Id.*

<sup>1340</sup> New York NYS-8 Testimony at 21 (Ex. NYSR00003); *see also* Tr. at 4388 (Dr. Degenef for New York).

it is operated within its design limits; they are invariant. In contrast, the properties of a transistor, itself, do change during its normal intended use.”<sup>1341</sup> In this regard, Dr. Degeneff explained that:

Resistance is a property of a transistor. During operation, a transistor’s resistance is changed, causing a change in the transistor’s properties. Furthermore, the change in resistance can cause a change in the transistor’s state from a conductor to an insulator. The Statement of Consideration specifically cites this change in state as the reason for excluding transistors from AMR.<sup>1342</sup>

Dr. Degeneff also testified that the changing magnetic field is not a property of the transformer itself but is created by the energy flowing through the transformer and does not cause a change in the transformer’s properties or state.<sup>1343</sup> He stated that “[u]nlike the transistor, the transformer always remains a conductor. In comparison, a magnetic field is also created by the electric current traveling through a cable, but this does not make a cable an active component . . .”<sup>1344</sup>

*e. Comparisons with Batteries*

New York witness Dr. Degeneff stated that for a battery, unlike a transformer, the characteristics of the battery fluid change, resulting in a definitive change in state.<sup>1345</sup> He testified that the chemicals used in producing energy are part of the composition of the battery and that the electrolytic properties of these chemicals change as the battery discharges.<sup>1346</sup> Dr. Degeneff further declared that:

[i]n contrast, only the properties of the power flowing through a transformer change. The key properties of a battery that has been discharged will be different from a full battery, but the key properties of a transformer that has had power flow through it will not be different from the properties of a transformer which has not been used.<sup>1347</sup>

Entergy witness Dr. Dobbs testified that these differences are irrelevant because “both transformers and batteries experience a change in their configuration or properties in performing their intended functions, and that proper operation of

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<sup>1341</sup> New York NYS-8 Testimony at 21 (Ex. NYSR00003); *see also* Tr. at 4388 (Dr. Degeneff for New York).

<sup>1342</sup> New York NYS-8 Rebuttal Testimony at 28-29 (Ex. NYSR00414).

<sup>1343</sup> *Id.* at 29.

<sup>1344</sup> *Id.*

<sup>1345</sup> Tr. at 4385 (Dr. Degeneff for New York).

<sup>1346</sup> New York NYS-8 Testimony at 26 (Ex. NYSR00003).

<sup>1347</sup> *Id.*

either device can be readily monitored at its external terminals as it operates.”<sup>1348</sup> NRC Staff witnesses used a similar argument in stating that transformers are similar to batteries because, like batteries, they operate without moving parts and change their state during operations.<sup>1349</sup> Dr. Degeneff responded that, like a transistor, a battery changes state while the transformer itself does not experience either a change in properties or a change in state.<sup>1350</sup>

*f. Comparison with Other Fluid-Containing Structures and Components*

Entergy witness Dr. Dobbs testified that in classifying a pipe, a heat exchanger, a steam generator, and a reactor vessel as “passive,” the relevant commonality is that they all serve as pressure retaining boundaries.<sup>1351</sup> New York witness Dr. Degeneff disagreed, claiming that, “the relevant inquiry is whether a component undergoes changes in configuration, properties, or state during operation,”<sup>1352</sup> and while “all of these components contain external materials (fluid or nuclear fuel) that undergo a change in properties or state . . . , the components themselves [do] not change properties, configuration or state.”<sup>1353</sup>

As a reason for the Staff’s classification of a heat exchanger as a “passive” component, Staff witness Ms. Ray claimed that a heat exchanger is hard to monitor.<sup>1354</sup> Moreover, according to Staff’s witnesses, transformers are different than the reactor pressure vessel, piping, containment, and steam generator that “perform their intended function without a change in state, configuration or property” in that “[t]ransformers, in contrast, perform their intended function through a change in state.”<sup>1355</sup> The Staff’s witnesses also testified that these SSCs “require an aging management review because functionality is measured indirectly and age-related degradation in them cannot be easily monitored.”<sup>1356</sup>

In response, while agreeing that transformers may be “more easily” monitored than heat exchangers, Dr. Degeneff declared that neither would rise to the level of being classified as “readily monitorable.”<sup>1357</sup>

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<sup>1348</sup> Entergy NYS-8 Testimony at 81 (Ex. ENTR00091).

<sup>1349</sup> NRC Staff NYS-8 Testimony at 20 (Ex. NRC000031).

<sup>1350</sup> New York NYS-8 Rebuttal Testimony at 30 (Ex. NYSR00414).

<sup>1351</sup> Entergy NYS-8 Testimony at 73 (Ex. ENTR00091).

<sup>1352</sup> New York NYS-8 Rebuttal Testimony at 27 (Ex. NYSR00414).

<sup>1353</sup> *Id.* at 28.

<sup>1354</sup> Tr. at 4382 (Ms. Ray for the NRC Staff).

<sup>1355</sup> NRC Staff NYS-8 Testimony at 22 (Ex. NRC000031).

<sup>1356</sup> *Id.* at 23.

<sup>1357</sup> Tr. at 4382 (Dr. Degeneff for New York).

*g. Comparisons with Other Electrical Devices*

Regarding other electrical devices such as a power supply, inverter, circuit board, battery charger, or circuit breaker, New York witness Dr. Degeneff stated that the operation of a transformer is not similar to these “excluded” components because these devices have “a mechanism to dynamically control the relationship between the input and output and, as such, each is a truly active device.”<sup>1358</sup>

As an example, Dr. Degeneff stated that for a power supply (which takes AC power and converts it into DC power) to perform its intended function (i.e., adjusting the load’s power properties to deliver the desired voltage and current) requires regulation that is controlled by an electric control circuit apart from the main circuit.<sup>1359</sup> He testified that “[t]he power supply, decides, so to speak, what kind of power to supply to the load, whereas the transformer can only supply the power that the load requires.”<sup>1360</sup>

Dr. Degeneff also explained that an inverter takes DC power and converts it into AC power by controlling the magnitude, frequency, and wave shape of the output power through the use of an external control that allows the power inverter to vary the relationship between the input and output power.<sup>1361</sup> This is dissimilar, he declared, to the operation of a transformer where the relationship between the input and output power is fixed and determined by the characteristics of the power fed into it and the load supplied by it.<sup>1362</sup>

According to New York’s witness, while the performance of a circuit board depends on what a circuit board is designed to do, a circuit board exists for the purpose of performing some “active” function.<sup>1363</sup> Dr. Degeneff testified further that the circuit board is actively adjusting the output on a continuous basis as the input is adjusted.<sup>1364</sup> He also declared that a similar situation exists with a power supply that changes its internal configuration to change a varying AC input voltage into a constant DC voltage.<sup>1365</sup> Dr. Degeneff testified that this contrasts with the operation of a transformer where, if the input voltage changes, so does the output voltage at a ratio determined by its fixed turns ratio.<sup>1366</sup> With a battery charger, Dr. Degeneff noted, it “will have some component, some active component in it to limit the amount of charging.”<sup>1367</sup>

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<sup>1358</sup> New York NYS-8 Testimony at 28 (Ex. NYSR00003).

<sup>1359</sup> *Id.* at 27-28.

<sup>1360</sup> *Id.*

<sup>1361</sup> *Id.* at 26-27.

<sup>1362</sup> *Id.*

<sup>1363</sup> Tr. at 4387-88 (Dr. Degeneff for New York).

<sup>1364</sup> *Id.*

<sup>1365</sup> Tr. at 4386 (Dr. Degeneff for New York).

<sup>1366</sup> *Id.*

<sup>1367</sup> Tr. at 4408 (Dr. Degeneff for New York).

Entergy witness Dr. Dobbs criticized the approach Dr. Degeneff used to segregate transformers from these other AMR-excluded electrical devices, asserting that Dr. Degeneff applied a “theory of inherited exclusion” when classifying power inverters, circuit boards, battery chargers, and power supplies as “active” components because, in part, they have solid state devices.<sup>1368</sup> Dr. Degeneff responded that Entergy was mischaracterizing his argument when claiming that power inverters, power supplies, and circuit boards are all excluded from AMR merely because they have solid state devices.<sup>1369</sup> Dr. Degeneff stated that his actual statement was that “since these components have solid state devices they can change state from a conductor to an insulator (or vice versa), and as such would be considered active devices.”<sup>1370</sup> Dr. Degeneff then declared that, “[c]ontrary to Dr. Dobbs’ statement, this is not true for transformers, which cannot change state.”<sup>1371</sup>

Regarding power supplies, Dr. Dobbs repeated his argument that “how much control is or is not present is irrelevant to its classification as ‘active’ or excluded in context of the Part 54.”<sup>1372</sup> He went on to state that “[n]o power supply details are given in 10 C.F.R. § 54.21(a)(1)(i) or in the 1995 License Renewal SOC, so the fact that power supplies are on the AMR-excluded list has nothing to do with voltage regulation.”<sup>1373</sup>

The NRC Staff witnesses agreed with Entergy that whether a component has an external control does not determine whether it is a long-lived “passive” component that requires aging management.<sup>1374</sup> The Staff’s witnesses went on to say that, like transformers, these other electrical devices “can be easily monitored for performance. Gross failure of these components is readily detectable during plant operation.”<sup>1375</sup> The Staff’s witnesses stated further that transformers can have external control mechanisms that dynamically control the relationship between input and output voltages.<sup>1376</sup> But Dr. Degeneff answered that the transformers to which the Staff’s witnesses were referring contain no-load tap changers (devices which have the ability to change the turns ratio).<sup>1377</sup> According to Dr. Degeneff, these tap changers are not necessary for a transformer to function and do not

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<sup>1368</sup> Entergy NYS-8 Testimony at 83-86 (Ex. ENTR00091).

<sup>1369</sup> New York NYS-8 Rebuttal Testimony at 31-32 (Ex. NYSR00414).

<sup>1370</sup> *Id.* at 32.

<sup>1371</sup> *Id.*

<sup>1372</sup> Entergy NYS-8 Testimony at 82 (Ex. ENTR00091).

<sup>1373</sup> *Id.*

<sup>1374</sup> NRC Staff NYS-8 Testimony at 23, 24 (Ex. NRC000031).

<sup>1375</sup> *Id.*

<sup>1376</sup> *Id.*

<sup>1377</sup> New York NYS-8 Rebuttal Testimony at 31 (Ex. NYSR00414).

change the basic operation of a transformer.<sup>1378</sup> Dr. Degeneff also stated that the external controls on power inverters and power supplies, like a transistor, are necessary to cause those devices to “perform some activity and change state or configuration, making it an active device.”<sup>1379</sup> According to Dr. Degeneff, “[a] transformer never changes state, even if it has a tap changer.”<sup>1380</sup>

## ***2. Findings Related to the Similarities with SSCs Included in or Excluded from AMR by Regulation***

Because it is not evident why certain components are classified as AMR included or excluded, we find that comparing transformers (or any other component for that matter) to the regulatory cited components is not conclusive in determining a perfect fit with one group or denoting universal differences with the other group.

Entergy witness Dr. Dobbs concluded that because New York’s reasons for considering transformers as passive devices and adding them to the exclusion list were not mentioned in the regulations or SOC, “they cannot be a reason for classification.”<sup>1381</sup> Dr. Dobbs is correct that the regulations and SOC are essentially silent on the specific reasons why a component is placed in its respective AMR group. But Dr. Dobbs’ argument can be turned against Entergy to the degree that this lack of an explanation appears to rob many of his comparisons with regulatory cited components as a “reason for classification,” rendering this exercise nearly meaningless.

Ultimately, the best we can hope for is to weigh the arguments provided by the parties and determine to what group of components, generally, a transformer is most similar and to what group a transformer is most dissimilar. So, with Dr. Dobbs’ point in mind, we move forward with our comparison of transformers to the 10 C.F.R. § 54.21(a)(1)(i) listed components to glean whatever useful information may be derived from this consideration.

And, in doing so, we find that Dr. Degeneff’s testimony, summarized above, provides sufficient evidence that transformers are more similar to the “passive” components that require AMR than to the “active” components that are excluded from AMR. Specifically, we find that transformers are more closely aligned with electrical cables, piping, steam generators, pump casings, valve bodies, and heat exchanges (i.e., “passive” components that require AMR) than they are with transistors, batteries, pumps, and valves (i.e., “active” components that don’t

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<sup>1378</sup> *Id.*

<sup>1379</sup> *Id.*

<sup>1380</sup> *Id.*

<sup>1381</sup> Tr. at 4390 (Dr. Dobbs for Entergy).

require AMR). Furthermore, while the difference between transformers and other “active” components like power supplies, inverters, battery chargers, and circuit boards is debatable, there are plausible differences between the performance of transformers and many of the “active” components excluded from AMR, including the aforementioned transistors, batteries, pumps, and valves.

In their comparisons, both Dr. Dobbs for Entergy and Ms. Ray and Mr. Matthew for the NRC Staff rely on the premise that changes in the voltage, current, and magnetic flux in a transformer is a change in state of the device and not a change in characteristics of the power flowing through the device and that transformers are readily monitorable by measuring the output electrical parameters (i.e., terminal voltage and current). According to these witnesses for Entergy and the NRC Staff, it is the measurement of this change in state that makes transformers similar to devices that are excluded by regulation from AMR (i.e., power inverters, battery chargers, power supplies, and circuit boards) and dissimilar to devices that are required to undergo AMR (i.e., pump casings, valve bodies, and ventilation ducts).<sup>1382</sup> The NRC Staff’s witnesses also relied on the premise that transformers can be easily monitored for performance in that gross failure is readily detectable during plant operation.<sup>1383</sup> We do not agree with any of these points.

Entergy’s and the Staff’s arguments ultimately collapse under our finding that transformers do not change properties or state during operation. In the Grimes Letter, the NRC Staff attempted to justify its position that transformers are excluded from AMR by stating that a transformer’s alleged change in state is similar to other components excluded in the regulations (i.e., 10 C.F.R. § 54.21(a)(1)(i)). But the Staff failed to convincingly explain why transformers are dissimilar to components which require AMR, including electrical cables, piping, reactor pressure vessels, steam generators, pump casings, valve bodies, heat exchangers, and ventilation ducts. Furthermore, the NRC Staff did not provide sufficient technical justification in the Grimes Letter regarding monitorability, i.e., the actual success of assessing current trending to identify potential future failure. While the Staff is correct that gross transformer failure can be detected by monitoring output, as discussed in Section VI.H.2 beginning at page 428, above, currently the available measurements and tests do not have a clear success rate in tracking the progressive degradation of transformers despite the decade-plus period since the Staff’s initial position paper was issued.

In regard to piping and other pressure boundary components, Entergy witness Dr. Dobbs stated that pressure and flow are not properties of water,<sup>1384</sup> concluding

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<sup>1382</sup> Tr. at 4384 (Ms. Ray for the NRC Staff); Tr. at 4389, 4394-97 (Dr. Dobbs for Entergy).

<sup>1383</sup> NRC Staff NYS-8 Testimony at 23 (Ex. NRC000031).

<sup>1384</sup> Entergy NYS-8 Testimony at 32, 71 (Ex. ENTR00091).

that “they result from outside forces acting on the water. Similarly, electricity is charge. It has no voltage or current unless it is acted on by some outside force.”<sup>1385</sup> While this is true, we find that the outside force does not come from piping in the case of water, or from the transformer in the case of electricity. A transformer does not change its properties or state as electricity is passed through it any more than piping changes its state with the flow of water. The Board finds that the change in the electrical characteristics through a transformer is analogous to the change in the characteristics of water flowing through a pipe (a component that does require AMR).

At the hearing, Dr. Dobbs raised a new argument against comparing the change in flow of water through a pipe to the change in electrical current in a transformer. He stated that piping, which has a pressure-retaining boundary, is automatically exempted from AMR as explained in the 1995 SOC,<sup>1386</sup> and concluded that any similarities between the internal flow of water in piping and electron flow in a transformer is trumped by the AMR exemption of a pipe as a pressure-retaining boundary.<sup>1387</sup> We find this argument faulty because the regulations and the SOC list piping separately from components containing a pressure-retaining boundary. If anything, this implies that piping must have some other characteristic that allows it to be excluded from AMR beside the fact that it has a pressure-retaining function.

The NRC Staff’s witnesses also claimed that power transformers are “active” AC devices,<sup>1388</sup> but do not explain why a transformer would be classified as “active” just because it is an AC device. These Staff witnesses also noted that with an “active” pipe, the fluid coming in is the same as the fluid going out, which is not the case with the power in a transformer. While this is true, the Staff did not convincingly explain how this trait has any bearing on whether a device does or does not require AMR. Specifically, there is nothing in the record stating how this trait would be useful in monitoring for age-related degradation, or that it is even feasible to utilize this performance characteristic. Staff witness Ms. Ray also stated that the wall thickness of a pipe can be measured (i.e., a discrete test is required) while a transformer is continuously monitored for voltage and current.<sup>1389</sup> This argument also is not persuasive because the pressure and flow from a pipe could also be measured to monitor for pipe failure. Furthermore, while monitoring a transformer or a pipe for outflow characteristics would help indicate gross failure, it would do little to help track incremental degradation necessary to predict impending failure.

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<sup>1385</sup> *Id.* at 69.

<sup>1386</sup> Tr. at 4405 (Dr. Dobbs for Entergy).

<sup>1387</sup> *Id.*

<sup>1388</sup> NRC Staff NYS-8 Testimony at 23 (Ex. NRC000031).

<sup>1389</sup> Tr. at 4378-79 (Ms. Ray for the NRC Staff).

We find that a transformer differs from a transistor (an “active” component that is exempt from AMR) due to the uncontested fact that a transistor changes state from one of resistance to one of conductivity by the use of a triggering current. Entergy claimed these components are similar because the changing magnetism in the core of a transformer is analogous to the changing resistivity in a transistor.<sup>1390</sup> We find, however, that the change in magnetism does not occur in the transformer itself (as the change in state does with transistor operation), but, rather, is caused by the changes in the alternating current flowing through the transformer. To accept Entergy’s argument, one also would have to consider cables to be “active” devices because of this change in magnetism. The Applicant relies upon this change in magnetism to group transformers with “active” components through its similarities with the change in state of a transistor. But we decline to follow suit, given the changing magnetism in both transformers and electrical cables is caused by the power flowing through these components, as opposed to changes in their state.

Regarding a battery, we find that the change in state or property of the battery fluid and the gradual decline in its output voltage can be monitored to track the incremental degradation of its condition. The record does not contain any support for the proposition that a similar incremental change consistently occurs in the output voltage from a transformer as it degrades. On the contrary, the evidence points to the fact that in most circumstances, transformers tend to work with no change in output voltage until, at some point, output voltage is quickly terminated during unanticipated catastrophic failure.

#### **J. Summary of Factual Findings Relating to the Need for AMR of a Transformer**

Our decision on this contention focuses on two issues: (1) whether a transformer changes properties/state during operations, and (2) whether a change in performance is readily monitorable to provide adequate aging management for this component. Relative to the first issue, both Entergy witnesses and NRC Staff witnesses maintained that transformers perform their intended functions through a change in state due to the variations in voltage, current, and magnetic flux as electricity passes through the component. They also asserted that a transformer changes its state by transforming electrical energy into magnetic energy, then back into electrical energy.<sup>1391</sup> But New York witness Dr. Degeneff convincingly explained that “during its operation, a transformer does not experience a change

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<sup>1390</sup> Entergy NYS-8 Testimony at 75 (Ex. ENTR00091).

<sup>1391</sup> NRC Staff NYS-8 Testimony at 11 (Ex. NRC000031); Entergy NYS-8 Testimony at 10-11 (Ex. ENTR00091).

in state — its constituent parts are exactly the same before the transformer is placed in service and during the period it is in service.”<sup>1392</sup>

We agree with New York that the change in state described by witnesses for Entergy and the NRC Staff does not occur in the transformer, but, rather this change is caused by the alterations in the electrical energy passing through the transformer. The varying magnetic field within the transformer and the change in voltage from the input terminals to the output terminals occur due to the alternating current of electricity and are not directly a modification of the configuration, properties, or state of the transformer hardware itself.

With regard to the second issue, Entergy and the NRC Staff both submit that the operation of a transformer is readily monitored by tracking its output voltage or current.<sup>1393</sup> New York does not disagree that the output voltage and current can be continuously monitored, but argues that this only tracks whether a transformer has failed or not, and does not provide any advanced indication of impending failure. Monitoring a transformer’s output parameters tracks its function (i.e., whether it is working), but does not provide any information on a transformer’s condition (i.e., whether it has suffered any incremental degradation).<sup>1394</sup>

We find that New York is correct. While transformer operation can be readily monitored for gross failure by measuring the output voltage and current, there is no evidence that monitoring these variables is useful in tracking the service life of a transformer and predicting its future failure — actions that are required in managing aging to implement corrective actions before there is a complete loss of its intended function. Entergy is using a variety of tests to monitor transformers under its CLB, but no evidence has been provided by any of the parties indicating that the incremental degradation of transformers can be successfully monitored to predict impending failure on a consistent basis. By a preponderance of the evidence presented to the Board, we find that a transformer can only be monitored for gross failure and not for temporal degradation, as would be needed to “readily” monitor the device through the PEO to meet the requirements of issue 2, above. And this inability to readily monitor a device is a characteristic associated with a “passive” SSC that indicates the component must be included under AMR for license renewal.

The Applicant and the Staff would prevail regarding this contention if simply monitoring for complete failure is sufficient for aging management. But we find that the heart of 10 C.F.R. Part 54, as expressed in the 1995 SOC, required being able to track structures and components for impending failure so that corrective actions can be identified and implemented prior to a failure.

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<sup>1392</sup> New York NYS-8 Rebuttal Testimony at 20 (Ex. NYSR00414).

<sup>1393</sup> Tr. at 4377-79 (Ms. Ray for the NRC Staff); Entergy NYS-8 Testimony at 37 (Ex. ENTR00091).

<sup>1394</sup> New York NYS-8 Rebuttal Testimony at 36-39 (Ex. NYSR00414).

Further, when comparing transformer operations to the SSCs specifically listed in 10 C.F.R. § 54.21(a)(1) as either included in or excluded from AMR, we conclude that transformers are more closely aligned with those components that require AMR (e.g., electrical cables, piping, reactor vessel, reactor coolant system pressure boundary, steam generators, pump casings, valve bodies, heat exchangers).<sup>1395</sup> Furthermore, there are plausible differences between the performance of transformers and many of the SSCs excluded from AMR (e.g., transistors, batteries, pumps, and valves).<sup>1396</sup>

To be sure, Entergy is currently monitoring its transformers under its CLB using detailed, corporate-wide and plant-specific procedures.<sup>1397</sup> While the Commission has stated that monitoring/inspections performed during current operations under 10 C.F.R. Part 50 and the CLB are excluded from review during license renewal as defined in 10 C.F.R. § 54.30, the mere fact that the intended function of transformers is being monitored in accordance with the CLB does not exempt them from needing to be included in an AMR program for license renewal. Indeed, by using the existing procedures the Applicant now employs as part of its CLB, it is plausible that the Applicant can, as part of its AMR, adequately manage the effects of aging so that transformer intended functions will be maintained during the PEO.

## K. Conclusions of Law

As a “passive” component with no moving parts, and no change in configuration, properties, or state, transformers fall with the scope of 10 C.F.R. Part 54 (as defined by 10 C.F.R. § 54.4) and must undergo AMR pursuant to 10 C.F.R. § 54.21(a)(1). Lacking an AMP for transformers, Entergy has not demonstrated that it will adequately manage the effects of aging on these components as required by 10 C.F.R. § 54.21(a)(3) to assure that the intended functions of these devices are maintained consistent with the CLB through the PEO. Accordingly, the need for AMR of transformers raised by NYS-8 is resolved in favor of New York and license renewal for IP2 and IP3 cannot be authorized or issued until Entergy has performed the required AMR on transformers that are within the scope of 10 C.F.R. Part 54.

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<sup>1395</sup> 10 C.F.R. § 54.21(a)(1)(i).

<sup>1396</sup> *Id.*

<sup>1397</sup> These corporate-wide and plant-specific procedures include: Large Power Transformer Inspection Guidelines, Entergy’s Fleet Engineering Guide EN-EG-G-001, Rev. 2 (Mar. 2011) (Ex. ENT000121); Station or Unit Auxiliary Transformer Annual In-service Inspection, IPEC Maintenance Procedure 0-XFR-407-ELC, Rev. 0 (May 2007) (Ex. ENT000124); Indian Point Energy Center Large Power Transformer Life Cycle Management Plan (2011) (Ex. ENT000125).

## **VII. NEPA CONTENTION NYS-12C (SAMA — DECONTAMINATION AND CLEANUP COSTS)**

### **A. Statement of Contention NYS-12C**

NYS-12C, a SAMA contention that challenges the accuracy of severe accident cost estimates, as litigated on October 17 and 18, 2012, reads as follows:

Entergy's severe accident mitigation alternatives (SAMA) for Indian Point 2 and Indian Point 3 does not accurately reflect decontamination and clean up costs associated with a severe accident in the New York Metropolitan Area and, therefore, Entergy's SAMA Analysis underestimates the cost of a severe accident in violation of 10 C.F.R. § 51.53(c)(3)(ii)(L).<sup>1398</sup>

### **B. NYS-12C Background**

#### ***1. NYS-12C Procedural History***

As filed by New York on November 30, 2007, NYS-12 contended that Entergy's SAMA analysis did "not accurately reflect decontamination and clean up costs associated with a severe accident in the New York City metropolitan area, and therefore, [that] Entergy's SAMA analysis underestimates the cost of a severe accident."<sup>1399</sup> Accordingly, New York alleged that the SAMA analysis failed to satisfy the requirements of 10 C.F.R. § 51.53(c)(3)(ii)(L).

New York claimed that the cost formula contained in the MACCS2 computer program used by Entergy underestimates the cost associated with a severe accident due to its use of unrealistic decontamination costs.<sup>1400</sup> According to New York, a "severe accident resulting in the dispersion of radionuclides from a nuclear power plant likely will result in the dispersion of small sized radionuclides" that are more expensive to remove and clean up than large-sized radionuclide particles.<sup>1401</sup> Accordingly, New York argued that this error compromised the values for CDNFRM and TIMDEC used as inputs to MACCS2 — the Applicant's analytical model used to perform its SAMA analysis,<sup>1402</sup> and, as a result the SAMA analysis in the LRA did not accurately determine which mitigation measures are cost-effective.<sup>1403</sup>

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<sup>1398</sup> New York Petition at 140.

<sup>1399</sup> *Id.*

<sup>1400</sup> *Id.*

<sup>1401</sup> *Id.* at 141.

<sup>1402</sup> *Id.*

<sup>1403</sup> *Id.* at 141-42.

NYS-12 was admitted by the Board on July 31, 2008, to the extent that it challenged the reasonableness of “the cost data for decontamination and clean up used in MACCS2.”<sup>1404</sup> Thereafter, New York amended NYS-12 three times. In the first two amendments, NYS-12A and NYS-12B, New York sought to apply NYS-12 to the NRC Staff’s DSEIS<sup>1405</sup> and Entergy’s revised SAMA analysis,<sup>1406</sup> respectively. Both revised contentions were admitted.<sup>1407</sup> New York then submitted NYS-12C in February 2011 to update NYS-12B based on the NRC Staff’s issuance of the FSEIS.<sup>1408</sup> In each submission, New York continued to maintain that the SAMA analysis substantially underestimated the cost of a severe accident by substantially underestimating the costs of decontamination measures.<sup>1409</sup> We admitted NYS-12C replacing NYS-12A/12B.<sup>1410</sup>

## **2. Legal Standards and Issues Related to NYS-12C**

NYS-12C arises under NEPA and the NRC’s implementing Part 51 regulations,<sup>1411</sup> and, as noted above, challenges the SAMA analysis required by 10 C.F.R. § 51.53(c)(3)(ii)(L). As discussed in the introductory section of this decision, the goal of NEPA is twofold: (1) to ensure that agency decisionmakers will have detailed information concerning significant environmental impacts of proposed projects when they make their decisions; and (2) to guarantee that such information will be available to the larger audience that may also play a role in the decisionmaking process.<sup>1412</sup>

As previously noted, NEPA does not mandate substantive results; rather, NEPA imposes procedural obligations on federal agencies, requiring them to take a “hard look” at the environmental impacts of a proposed action and

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<sup>1404</sup> LBP-08-13, 68 NRC at 102.

<sup>1405</sup> See State of New York Contentions Concerning NRC Staff’s Draft Supplemental Environmental Impact Statement (Feb. 27, 2008). Note that New York’s filing was submitted in 2009, not 2008 as indicated in the original filing.

<sup>1406</sup> See State of New York’s Motion for Leave to File New and Amended Contentions Concerning the December 2009 Reanalysis of Severe Accident Mitigation Alternatives (Mar. 11, 2010).

<sup>1407</sup> See Licensing Board Order (Ruling on New York State’s New and Amended Contentions) at 3-4 (June 16, 2009) (unpublished); see also LBP-10-13, 71 NRC at 683-84.

<sup>1408</sup> See State of New York Contention 12-C Concerning NRC Staff’s December 2010 Final Environmental Impact Statement and the Underestimation of Decontamination and Clean Up Costs Associated with a Severe Reactor Accident in the New York Metropolitan Area (Feb. 3, 2011).

<sup>1409</sup> *Id.* at 1.

<sup>1410</sup> Memorandum and Order (Ruling on Pending Motions for Leave to File New and Amended Contentions) (July 6, 2011) at 9 (unpublished).

<sup>1411</sup> 42 U.S.C. §§ 4321-4370; 10 C.F.R. Part 51.

<sup>1412</sup> *Robertson*, 490 U.S. at 349.

reasonable alternatives to that action.<sup>1413</sup> This standard requires the agency to undertake a rigorous exploration and an objective analysis of environmental impacts. Merely offering “general statements about ‘possible’ effects and ‘some risk’ do[es] not constitute a ‘hard look’ absent a justification regarding why more definitive information could not be provided.”<sup>1414</sup> Taking a hard look “‘foster[s] both informed decision-making and informed public participation,’”<sup>1415</sup> and thus ensures that the agency does not act upon “‘incomplete information, only to regret its decision after it is too late to correct.’”<sup>1416</sup>

NEPA’s “hard look,” however, is tempered by a “rule of reason.”<sup>1417</sup> An agency need only address reasonably foreseeable impacts, not those that are “remote and speculative” or “inconsequentially small.”<sup>1418</sup> NEPA requires only “[r]easonable forecasting.”<sup>1419</sup> As the Commission stated in its *Pilgrim* decision:

NEPA “should be construed in the light of reason if it is not to demand” virtually infinite study and resources. Nor is an environmental impact statement intended to be a “research document,” reflecting the frontiers of scientific methodology, studies and data. . . . And while there “will always be more data that could be gathered,” agencies “must have some discretion to draw the line and move forward with decisionmaking.” In short, NEPA allows agencies “to select their own methodology as long as that methodology is reasonable.”<sup>1420</sup>

Performed under NEPA, a SAMA analysis evaluates the degree to which spe-

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<sup>1413</sup> *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998); *see also* *Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 97 (1983) (holding that NEPA requires agencies to take a “hard look” at environmental consequences prior to taking major actions).

<sup>1414</sup> *Pa’ina Hawaii*, CLI-10-18, 72 NRC at 74 (quoting *Blue Mountains Biodiversity Project*, 161 F.3d at 1213).

<sup>1415</sup> *Claiborne*, CLI-98-3, 47 NRC at 88 (quoting *Carmel-by-the-Sea v. Department of Transportation*, 123 F.3d 1142, 1150-51 (9th Cir. 1997)).

<sup>1416</sup> *Id.* (quoting *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 371 (1989)).

<sup>1417</sup> *Louisiana Energy Services, L.P.* (National Enrichment Facility), LBP-06-8, 63 NRC 241, 258-59 (2006) (citing *Long Island Lighting Co.* (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 836 (1973)); *see also* *Department of Transportation v. Public Citizen*, 541 U.S. 752, 767 (2004) (stating that the rule of reason is inherent in NEPA and its implementing regulations).

<sup>1418</sup> *See, e.g., Shoreham*, ALAB-156, 6 AEC at 836. According to the Council on Environmental Quality (CEQ), the “rule of reason” is “a judicial device to ensure that common sense and reason are not lost in the rubric of regulation.” Final Rule: “National Environmental Policy Act Regulations; Incomplete or Unavailable Information,” 51 Fed. Reg. 15,618, 15,621 (Apr. 25, 1986).

<sup>1419</sup> *Scientists’ Institute for Public Information, Inc. v. AEC*, 481 F.2d 1079, 1092 (D.C. Cir. 1973); *see also* *Robertson*, 490 U.S. at 354-55, 359 (rejecting the notion that NEPA requires a “worst case analysis”).

<sup>1420</sup> *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 315-16 (2010) (internal citations omitted).

cific additional mitigation measures may reduce the probability or consequences of various accident scenarios on a site-specific basis.<sup>1421</sup> It is a quantitative cost-benefit analysis, comparing the costs of implementing a mitigation measure against the value of its benefit.<sup>1422</sup> The analysis also takes into account the probabilities of accident scenarios, so that the analysis ultimately “assesses whether and to what extent the probability-weighted consequences of the analyzed severe accident sequences would decrease if a specific mitigation alternative were implemented.”<sup>1423</sup> A SAMA analysis must necessarily be site specific “[b]ecause the potential consequences [of a severe accident] will largely be the product of the location of the plant . . .”<sup>1424</sup>

SAMA analyses, as issues of mitigation, “need only be discussed in ‘sufficient detail to ensure that environmental consequences [of the proposed project] have been fairly evaluated.’”<sup>1425</sup> According to the Commission, in the SAMA context NEPA requires the FSEIS to include an analysis containing reasonable estimates. More specifically, the Commission stated that in order to satisfy its obligations under NEPA the FSEIS need only explain any

known shortcomings in available methodology, disclosure of incomplete or unavailable information and significant uncertainties, and a reasoned evaluation of whether and to what extent these or other considerations credibly could . . . alter the . . . SAMA analysis conclusions . . .<sup>1426</sup>

As a NEPA analysis, “the SAMA analysis is not based on either the best-case or the worst-case accident scenarios, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios . . .”<sup>1427</sup> When assessing a SAMA analysis, “the question is not whether more or different analysis can be done.”<sup>1428</sup> It is clear that “because the SAMA analysis is largely quantitative, resting on inputs used in computer modeling, it will always be possible to propose that the analysis use one or more other inputs.”<sup>1429</sup> Put another way, “[g]iven the quantitative nature of the SAMA analysis, where the analysis rests largely on

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<sup>1421</sup> *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 706 (2012); *McGuire/Catawba*, CLI-02-17, 56 NRC at 5.

<sup>1422</sup> *Pilgrim*, CLI-12-15, 75 NRC at 706-07.

<sup>1423</sup> *Id.* at 707 (internal quotation marks omitted).

<sup>1424</sup> *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 739 (3d Cir. 1989).

<sup>1425</sup> *McGuire/Catawba*, CLI-03-17, 58 NRC at 431 (alteration in original) (quoting *Robertson*, 490 U.S. at 353).

<sup>1426</sup> *Pilgrim*, CLI-10-22, 72 NRC at 208-09.

<sup>1427</sup> *Pilgrim*, CLI-12-15, 75 NRC at 708.

<sup>1428</sup> *Id.* at 714.

<sup>1429</sup> *FirstEnergy Nuclear Operating Co.* (Davis-Besse Nuclear Power Station, Unit 1), CLI-12-8, 75 NRC 393, 406 (2012) (emphasis in original).

selected inputs, it may always be possible to conceive of alternative and more conservative inputs, whose use in the analysis could result in greater estimated accident consequences.”<sup>1430</sup> Simply because alternate inputs could be used, does not demonstrate that the original inputs used were unreasonable.<sup>1431</sup> Like other NEPA evaluations, the SAMA analysis evaluation is governed by the rule of reason and “alternatives must be bounded by some notion of feasibility.”<sup>1432</sup> The Commission has therefore stressed that the “proper question is not whether there are plausible alternative choices for use in the analysis, but whether the analysis that was done is reasonable under NEPA.”<sup>1433</sup> To be successful, New York thus must point to a deficiency that renders the SAMA analysis unreasonable under NEPA.

### **3. *Evidentiary Record Related to NYS-12C***

#### *a. Identification of Witnesses Who Provided Testimony Relevant to NYS-12C*

Entergy presented three witnesses to provide testimony on NYS-12C — Lori A. Potts,<sup>1434</sup> Dr. Kevin R. O’Kula,<sup>1435</sup> and Grant A. Teagarden.<sup>1436</sup> On March 30, 2012, Entergy filed the written testimony of these three witnesses,<sup>1437</sup> which was admitted into evidence on October 15, 2012.<sup>1438</sup>

The NRC Staff presented four witnesses to provide testimony on NYS-12C — Dr. Nathan E. Bixler,<sup>1439</sup> Dr. S. Tina Ghosh,<sup>1440</sup> Joseph A. Jones,<sup>1441</sup> and Donald G. Harrison.<sup>1442</sup> On March 30, 2012, the NRC Staff filed the written testimony

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<sup>1430</sup> *Seabrook*, CLI-12-5, 75 NRC at 323.

<sup>1431</sup> *Id.*

<sup>1432</sup> *Pilgrim*, CLI-12-15, 75 NRC at 724 (citations omitted).

<sup>1433</sup> *Seabrook*, CLI-12-5, 75 NRC at 323.

<sup>1434</sup> Curriculum Vitae of Lori A. Potts (Ex. ENT000004).

<sup>1435</sup> Curriculum Vitae of Kevin R. O’Kula (Ex. ENT000005).

<sup>1436</sup> Curriculum Vitae of Grant A. Teagarden (Ex. ENT000007).

<sup>1437</sup> See Testimony of Entergy Witnesses Lori Potts, Kevin O’Kula, and Grant Teagarden on Consolidated Contention NYS-12C (Severe Accident Mitigation Alternatives Analysis) (Mar. 30, 2012) (Ex. ENT000450) [hereinafter Entergy NYS-12C Testimony].

<sup>1438</sup> Tr. at 1269 (Judge McDade).

<sup>1439</sup> Nathan Bixler Statement of Professional Qualifications (Ex. NRC000042).

<sup>1440</sup> Tina Ghosh Statement of Professional Qualifications (Ex. NRC000043).

<sup>1441</sup> Joseph Jones Statement of Professional Qualifications (Ex. NRC000044).

<sup>1442</sup> Donald Harrison Statement of Professional Qualifications (Ex. NRC000045).

of these four witnesses,<sup>1443</sup> which was admitted into evidence on October 15, 2012.<sup>1444</sup>

New York presented one witness to provide testimony on NYS-12C — Dr. François J. Lemay.<sup>1445</sup> On December 21, 2011, New York filed the written testimony of Dr. Lemay.<sup>1446</sup> On June 29, 2012, New York submitted written rebuttal testimony by Dr. Lemay.<sup>1447</sup> Both of these submissions were admitted into evidence on October 15, 2012.<sup>1448</sup>

*b. Identification of Admitted Exhibits Relevant to NYS-12C*

Relevant to NYS-12C, Entergy submitted 41 exhibits, the Staff submitted 23 exhibits, and New York submitted 110 exhibits.<sup>1449</sup> These exhibits were admitted into the record on October 15, 2012.<sup>1450</sup>

*c. Significant NRC Staff Guidance Documents, Industry Guidance Documents, and Corporate Procedures Relevant to NYS-12C*

1. NUREG-1150, Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants (Dec. 1990) (Exs. NYS00252A-C). NUREG-1150 is a guidance document published by the NRC that presents an assessment of the risks from severe accidents based on studies representing five commercial nuclear power plants in the U.S.<sup>1451</sup> It summarizes the results of those studies and provides perspectives on how the results may be used by the NRC in carrying out its safety and regulatory responsibilities.<sup>1452</sup> NUREG-1150 states that its objective is to provide a current assessment of the severe accident risks of nuclear power

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<sup>1443</sup> See NRC Staff Testimony of Nathan E. Bixler, S. Tina Ghosh, Joseph A. Jones, and Donald G. Harrison Concerning NYS' Contentions NYS 12/16 (Mar. 30, 2012) (Ex. NRC000041) [hereinafter NRC Staff NYS-12C/16B Testimony].

<sup>1444</sup> Tr. at 1269 (Judge McDade).

<sup>1445</sup> Curriculum Vitae of Dr. François J. LeMay (Ex. NYS000291).

<sup>1446</sup> See Pre-Filed Written Testimony of Dr. François J. Lemay Regarding Consolidated NYS-12-C (NYS-12/12-A/12-B/12-C) (Dec. 21, 2011) (Ex. NYS000241) [hereinafter New York NYS-12C Testimony].

<sup>1447</sup> See Pre-Filed Written Rebuttal Testimony of Dr. François J. Lemay Regarding Consolidated Contention NYS-12C (NYS-12/12-A/12-B/12-C) (June 29, 2012) (Ex. NYS000420) [hereinafter New York NYS-12C Rebuttal Testimony].

<sup>1448</sup> Tr. at 1269 (Judge McDade).

<sup>1449</sup> See Appendix B, Partial Initial Decision.

<sup>1450</sup> Tr. at 1269 (Judge McDade).

<sup>1451</sup> RES, Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants (NUREG-1150) at iii (Dec. 1990) (Exs. NYS00252A-D) [hereinafter NUREG-1150].

<sup>1452</sup> *Id.* at 1-2.

plants of different designs, to summarize the perspectives gained in performing these risk analyses, and to provide a set of probabilistic risk assessment (PRA) models and results that can support the ongoing prioritization of potential safety issues and related research.<sup>1453</sup>

2. NEI 05-01, Rev. A, Severe Accident Mitigation Alternatives (SAMA) Analysis, Guidance Document (Nov. 2005) (Ex. NYS000287). NEI 05-01 was published by the Nuclear Energy Institute, a trade association that represents the nuclear industry. NEI 05-01 states that it provides a template for completing a SAMA analysis to support license renewal,<sup>1454</sup> and that it was developed to provide guidance to reactor license renewal applicants for completing the SAMA analysis required by NRC's regulations.<sup>1455</sup> The stated purpose of this document is to identify information that should be included in the SAMA portion of an LRA ER to reduce the need for NRC requests for additional information.<sup>1456</sup>

3. NUREG/CR-6613,<sup>1457</sup> Code Manual for MACCS2, Vol. 1, User's Guide (May 1998) (Ex. NYS000243). This report describes the MACCS2 code. It states that it is intended to allow experienced users of the MACCS2 code or other consequence codes to prepare input files and interpret code results.<sup>1458</sup>

4. NUREG/CR-4551, SAND86-1309, Vol. 2, Rev. 1, Part 7, Evaluation of Severe Accident Risks: Quantification of Major Input Parameters (Dec. 1990) (Ex. NYS000248). This report presents the results of the reviews of MACCS<sup>1459</sup> input parameters.<sup>1460</sup> Specifically, this report provides recommended MACCS values for, among others, economic input parameters and the basis for their selection.<sup>1461</sup>

5. NUREG/CR-3673, Sandia National Labs, Economic Risks of Nuclear Power Reactors Accidents (May 1984) (Ex. NRC000058). At the time of its publication, NUREG/CR-3673 developed and employed improved models to estimate the economic risks from unanticipated events which possibly occur

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<sup>1453</sup> *Id.*

<sup>1454</sup> Nuclear Energy Institute, Severe Accident Mitigation Alternatives (SAMA Analysis) Guidance Document (NEI 05-01) at 1 (Nov. 2005) (Ex. NYS000287) [hereinafter NEI 05-01].

<sup>1455</sup> *Id.*

<sup>1456</sup> *Id.*

<sup>1457</sup> The NUREG/CR designation indicates that this is a Contractor Report.

<sup>1458</sup> NUREG/CR-6613, Code Manual for MACCS2, Vol. 1, User's Guide at xi (May 1998) (Ex. NYS000243) [hereinafter MACCS2 User's Guide].

<sup>1459</sup> The MACCS code is the earlier version of the MACCS2 code. *Id.* at 1-3 to -4. The first version of MACCS released to the public was distributed by Sandia in 1987. *Id.* at 1-2. MACCS2 was developed and first released to the public in 1998. *Id.* at 1-4.

<sup>1460</sup> NUREG/CR-4551, SAND86-1309, Vol. 2, Rev. 1, Part 7, Evaluation of Severe Accident Risks: Quantification of Major Input Parameters at iii (Dec. 1990) (Ex. NYS000248).

<sup>1461</sup> *Id.*

during nuclear reactor operation.<sup>1462</sup> This report developed offsite consequences that result from a severe accident.<sup>1463</sup>

### C. Evidence Related to SAMA — Decontamination and Cleanup Costs

Entergy's witnesses testified that their SAMA analysis evaluates "potential long-term severe accident consequence scenarios for the purpose of making reasonable cost-benefit evaluations under NEPA."<sup>1464</sup> According to these witnesses, the SAMA analysis was not designed to model a single radiological release event under specific conditions at a single moment in time because it is concerned with mean annual consequences.<sup>1465</sup> Instead, as Entergy's witnesses testified, "it models numerous accident release conditions that could, based on probabilistic analysis, occur at any time under varying weather conditions during a 1-year period. The goal was to estimate annual average impacts for the entire 50-mile radius study area."<sup>1466</sup>

Entergy's witnesses further testified that their SAMA analysis was intended to "identify potential changes to a nuclear power plant, or its operations, that could reduce the already-low risk (the likelihood and/or the impact) of a severe accident for which the benefit of implementing the change may outweigh the cost of implementation."<sup>1467</sup> They stated that potential changes that could reduce the risk of a severe accident (called SAMAs or SAMA candidates) include hardware modifications or operational changes.<sup>1468</sup>

Entergy's witnesses stated that, in order to identify SAMAs or SAMA candidates, a four-step SAMA analysis was completed,<sup>1469</sup> including:

- (1) characterizing the overall plant severe accident risk and the leading contributors to the risk; (2) identifying potential plant improvements (i.e., SAMA candidates) that could reduce the risk of a severe accident; (3) quantifying the risk-reduction potential and the implementation cost for each SAMA candidate; and (4) determining whether implementation of the SAMA candidates may be cost-effective.<sup>1470</sup>

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<sup>1462</sup> Sandia National Labs, Economic Risks of Nuclear Power Reactors Accidents (NUREG/CR-3673) at EX-1 (May 1984) (Ex. NRC000058) [hereinafter NUREG/CR-3673].

<sup>1463</sup> *Id.*

<sup>1464</sup> Entergy NYS-12C Testimony at 18 (Ex. ENT000450).

<sup>1465</sup> *Id.*

<sup>1466</sup> *Id.* (emphasis omitted).

<sup>1467</sup> *Id.* at 17.

<sup>1468</sup> *Id.*

<sup>1469</sup> *Id.* at 18.

<sup>1470</sup> *Id.*

Documentation submitted by the Applicant to the NRC Staff reflects that Entergy followed this four-step approach in performing its SAMA analysis for IPEC.<sup>1471</sup> According to Dr. O’Kula and Mr. Teagarden for Entergy, in order to identify cost-beneficial (i.e., cost-effective) SAMAs, an implementation cost assessment is performed for each SAMA, the estimated benefit of each SAMA is compared to its estimated implementation cost,<sup>1472</sup> and if the benefit of the SAMA is greater than its cost, the SAMA is considered cost-beneficial.<sup>1473</sup> The Staff’s review of Entergy’s SAMA analysis is summarized in section 5.2 of the FSEIS and documented in full in Appendix G of the FSEIS.<sup>1474</sup>

Entergy used the MACCS2 computer code to perform the IPEC SAMA analysis in order to estimate plant-specific offsite population doses and economic consequences that could result from the postulated accidental release of radioactive materials to the atmosphere during a severe accident at IPEC.<sup>1475</sup> The MACCS2 code purports to offer users flexibility by facilitating the performance of site-specific calculations and evaluations of sensitivities and uncertainties.<sup>1476</sup>

According to various witnesses for Entergy, Entergy used certain inputs to its MACCS2 modeling to provide offsite consequence information, including meteorological data, population distribution within the 50-mile SAMA analysis region for the projected year 2035, reactor core radionuclide inventories, source term and release characteristics, and region-specific economic data that are considered site specific, and that Entergy used values that appear in NUREG-1150 as inputs to the MACCS2 code.<sup>1477</sup> These NUREG-1150 values are the focus of NYS-12C.

As discussed below, New York took issue with the use of the NUREG-1150 values, and proposed alternative values for the following MACCS2 inputs:

CDNFRM, which defines the nonfarmland decontamination cost per individual for each level of decontamination.

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<sup>1471</sup> See License Renewal Application at 4-48 to -50 (Ex. ENT00015B). Entergy also followed this approach in performing its December 2009 revised SAMA; *see also* NL-09-165, Attach. 1 at 3-9 (Ex. ENT000009).

<sup>1472</sup> Entergy NYS-12C Testimony at 22-23 (Ex. ENT000450).

<sup>1473</sup> *Id.* at 23.

<sup>1474</sup> See FSEIS at 5-4 to -13 (Dec. 2010) (Exs. NYS00133B-C); *see also id.* at G-1 to -51 (Ex. NYS00133I).

<sup>1475</sup> Entergy NYS-12C Testimony at 23-24 (Ex. ENT000450).

<sup>1476</sup> MACCS2 User’s Guide at 1-2 (Ex. NYS00243). MACCS2 was developed because of the inability of its predecessor code, CRAC2, to offer sufficient flexibility for the performance of sensitivity studies and the evaluation of alternative parameter values for its models. *Id.*

<sup>1477</sup> Entergy NYS-12C Testimony at 62 (Ex. ENT000450); Tr. at 1947-50, 2064-66 (Mr. Teagarden for Entergy). Site-specific inputs refer to parameters such as meteorological data, population distributions, land value, etc.

TIMDEC, which defines the time required for completion of each of the decontamination levels.

VALWNF, which defines the value of the per capita nonfarm wealth in the region.

POPCST, which defines the per capita removal cost for temporary or permanent relocation of population and businesses in a region rendered uninhabitable during the long-term phase time period.

DPRATE, which defines the depreciation rate applied to property improvements during the period of interdiction.

DSRATE, which defines the expected rate of return from land, buildings, equipment, etc. (e.g., the inflation-adjusted real mortgage rate for land and buildings could be used).

FRNFIIM, which defines the nonfarm wealth improvements fraction.<sup>1478</sup>

Except for VALWNF, which was developed using economic data specific to the IPEC region, all other parameters used by Entergy in the IP2 and IP3 SAMA analyses were selected from the Sample Problem A values presented in NUREG-1150.<sup>1479</sup> It was uncontested that the TIMDEC and CDNFRM input values have the most significant impact among the MACCS2 parameters at issue here, with the others being essentially irrelevant to the MACCS2 model's economic cost results.<sup>1480</sup> Therefore, the Board limits its consideration to these two values.

The TIMDEC parameter defines the time required for completion of each of the user-selected decontamination levels.<sup>1481</sup> The MACCS2 code requires users to input this decontamination time for each level of decontamination effectiveness being assessed (i.e., dose reduction factor or DRF).<sup>1482</sup> Entergy used an input of 60

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<sup>1478</sup> See Entergy NYS-12C Testimony at 65-67 (Ex. ENT000450) (identifying values that New York's expert witness, Dr. Lemay, proposes different values); see also MACCS2 User's Guide at 7-13 to -14, 7-18, 7-10 to -11 (Ex. NYS000243).

<sup>1479</sup> New York NYS-12C Testimony at 9, 21 (Ex. NYS000241). MACCS2 User's Guide contains fourteen sample problems. MACCS2 User's Guide at 4-1 to -9 (Ex. NYS000243). The MACCS2 User's Guide uses these sample problems to compare the MACCS and MACCS2 codes and to illustrate different aspects of code functionality. *See id.* at 4-3. Sample Problem A is based on input data used for the NUREG-1150 assessment of Surry Unit 1. *Id.* "Sample Problem A input values" is synonymous with "NUREG-1150 values."

<sup>1480</sup> Tr. at 2054 (Dr. Lemay for New York). During the hearing, New York's expert, Dr. Lemay, stated that "[i]t was our assessment that CDNFRM and TIMDEC were the most important ones, and the rest had minimal impact on the calculation of the offsite economic cost." *Id.* at 2054-55.

<sup>1481</sup> MACCS2 User's Guide at 7-10 (Ex. NYS000243).

<sup>1482</sup> Entergy NYS-12C Testimony at 89 (Ex. ENT000450). The DRF is the ratio of the radiological dose (typically 1 meter above the surface) before the remediation activity to the dose after the

(Continued)

days for a DRF of 3 and 120 days for DRF of 15.<sup>1483</sup> Entergy witnesses accurately testified that the two DRFs and the associated decontamination times (60 and 120 days) used by the Applicant in its SAMA analyses “are fully consistent with the NUREG-1150 values for those MACCS2 parameters.”<sup>1484</sup>

The CDNFRM input to MACCS2 defines the nonfarmland decontamination cost per individual for each level of decontamination considered.<sup>1485</sup> Similar to TIMDEC, the MACCS2 code requires users to input CDNFRM values for each DRF.<sup>1486</sup> Entergy witnesses testified that Entergy selected values of \$5184/person and \$13,824/person for DRFs of 3 and 15, respectively,<sup>1487</sup> which were based on the Sample Problem A inputs (i.e., \$3000/person and \$8000/person, respectively), and adjusting these values using the ratio of current to past consumer price indices (CPIs).<sup>1488</sup>

According to the testimony of its witnesses, in preparing its SAMA analysis, Entergy used these input values in the CHRONC module of the MACCS2 code.<sup>1489</sup> This module of the MACCS2 code calculates, among other things, the economic costs associated with both an emergency phase and a long-term phase following a severe accident.<sup>1490</sup> The CHRONC module calculates the offsite population dose incurred during the long-term phase and the economic costs of both phases for one weather sequence.<sup>1491</sup> The MACCS2 code output, which is the offsite economic cost consequence and offsite population dose values, was multiplied by the calculated severe accident frequency.<sup>1492</sup> This calculation resulted in the

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remediation activity. *Id.* at 67. A DRF of 3 means that the resulting population dose at that location will be reduced to one-third of what it would be without decontamination activity. *Id.* A DRF of 15 means that the resulting population dose at the location would be reduced to 1/15 of what it would have been without decontamination. *Id.*

<sup>1483</sup> *Id.* at 72.

<sup>1484</sup> *Id.*

<sup>1485</sup> MACCS2 User’s Guide at 7-11 (Ex. NYS000243).

<sup>1486</sup> *Id.*

<sup>1487</sup> Entergy NYS-12C Testimony at 89 (Ex. ENT000450).

<sup>1488</sup> *Id.*; Tr. at 1951 (Mr. Teagarden for Entergy). NEI 05-01 states that economic data should be expressed in today’s dollars by being converted to today’s dollars using the ratio of current to past consumer price indices. NEI 05-01 at 13 (Ex. NYS000287).

<sup>1489</sup> The CHRONC module is one of three modules in the MACCS2 code (along with ATMOS and EARLY) that executes in sequence to calculate consequence values necessary for a SAMA analysis. See MACCS2 User’s Guide at 2-1 (Ex. NYS000243).

<sup>1490</sup> *Id.* at 7-1. The CHRONC module of MACCS2 also calculates the long-term offsite population dose (following the emergency-phase time period) due to direct exposure from contaminated ground and inhalation of suspended material, and indirect exposure due to ingestion of contaminated foods and water. *Id.*

<sup>1491</sup> Entergy NYS-12C Testimony at 41 (Ex. ENT000450).

<sup>1492</sup> *Id.* at 45. As explained above, the first step of the SAMA analysis is to characterize the overall plant severe accident risk by developing a plant-specific PRA. *Id.* at 18-19.

key risk values of interest for determining potentially cost-beneficial SAMAs: population dose risk (PDR); and offsite economic cost risk (OECR).<sup>1493</sup> The individual PDRs and OECRs from the spectrum of different accident release categories were then summed to determine the overall PDR and overall OECR for the SAMA analysis.<sup>1494</sup>

To identify SAMAs that may be cost-beneficial, the benefit in terms of mitigated consequences of each mitigation alternative, or SAMA, was estimated in accordance with NRC guidance documents and compared with the estimated cost of implementing the proposed SAMA.<sup>1495</sup> The results of the cost-benefit analysis of IPEC's SAMA candidates are documented in NL-09-165 and in Appendix G of the FSEIS.<sup>1496</sup>

The Staff reviewed the CDNFRM and TIMDEC inputs selected by Entergy and found them reasonable based on the available information and appropriate for a NEPA analysis at IP2 and IP3.<sup>1497</sup> Section 5.2 and Appendix G of the FSEIS contain a discussion and evaluation of the IP2 and IP3 SAMA analyses, including the methods used in those analyses and results.<sup>1498</sup> Additionally, the NRC Staff's review of Entergy's SAMA analysis is summarized in section 5.2 of the FSEIS and documented in Appendix G of the FSEIS.<sup>1499</sup> The details of the Staff's position will not be discussed here as it is not materially different from Entergy's position outlined above.<sup>1500</sup>

New York's witness, Dr. Lemay, asserted that Entergy, in its SAMA analysis, failed to adequately address site-specific assumptions and inputs related to cleanup and decontamination costs in the New York City metropolitan region in the event of a severe accident at IPEC.<sup>1501</sup> Dr. Lemay testified that developing site-specific MACCS2 code inputs is important because

[i]nputs to the MACCS2 code are dependent on the locations of the nuclear reactor. The costs and methods of cleaning up after a severe accident will be very different depending on whether a reactor is surrounded by farmland, forests, suburban areas, urban areas, or hyper-urban areas. Thus, to determine reasonable input values, one

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<sup>1493</sup> *Id.* at 45.

<sup>1494</sup> *Id.*

<sup>1495</sup> *Id.* at 46.

<sup>1496</sup> See NL-09-165 at 5-9 (Ex. ENT000009).

<sup>1497</sup> NRC Staff NYS-12C/16B Testimony at 12-16 (Ex. NRC000041).

<sup>1498</sup> See FSEIS at 5-1 to -13, G-1 to -51 (Ex. NYS00133B-C, I).

<sup>1499</sup> See *id.* at 5-4 to -12 (Exs. NYS00133B-C); see also *id.* at G-1 to -51 (Ex. NYS00133I).

<sup>1500</sup> See, e.g., NRC Staff's Initial Statement of Position on Consolidated Contention NYS-12C (Mar. 30, 2012).

<sup>1501</sup> New York NYS-12C Testimony at 7 (Ex. NYS000241).

must look at site-specific data or, where site-specific data is not available, modify available data to reflect site-specific conditions.<sup>1502</sup>

Dr. Lemay further asserted that Entergy's decision to use Sample Problem A values in NUREG-1150, rather than developing site-specific MACCS2 input parameters, led to a substantial underestimation of the costs of decontamination measures which must be considered in Entergy's LRA.<sup>1503</sup>

Dr. Lemay focused on two MACCS2 code input parameters: TIMDEC and CDNFRM.<sup>1504</sup> He testified that Entergy's underestimation of decontamination costs is primarily a result of Entergy's use of MACCS2 Sample Problem A input values for the CHRONC module. This underestimation, according to Dr. Lemay, "was mostly due to costs and times for decontamination that were unrealistic given current known decontamination data and the complexities of an urban to hyper-urban area such as that surrounding IP."<sup>1505</sup>

Dr. Lemay further testified that Entergy's TIMDEC values have not been justified,<sup>1506</sup> and by comparing the time utilized by Entergy to decontaminate the impacts of a severe accident to the decontamination time associated with two actual severe accidents — Chernobyl and Fukushima — it was evident to him that Entergy's TIMDEC values are unreasonable input values.<sup>1507</sup> Based on the time required to decontaminate the areas surrounding those two accidents, Dr. Lemay stated that decontamination times between 2 to 15 years (versus 60 days for a DRF of 3) and between 4 and 30 years (versus 120 days for a DRF of 15) are more

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<sup>1502</sup> *Id.* at 19-20.

<sup>1503</sup> *Id.* at 7-8.

<sup>1504</sup> See ISR Report at iii-iv (Ex. NYS000242). As indicated above, New York challenges additional input parameters. However, as Dr. Lemay stated and as discussed above, the TIMDEC and CDNFRM parameters are the most important. Tr. at 2054 (Dr. Lemay for New York). Dr. Lemay's focus on TIMDEC and CDNFRM is largely the result of performing a sensitivity analysis on MACCS2 input parameters. New York NYS-12C Testimony at 23 (Ex. NYS000241). He stated that a sensitivity analysis was performed "to determine which input parameters directly and most significantly affect the costs of mitigative actions following a severe accident." *Id.* at 23-24. Based on this sensitivity analysis, New York's witness testified that he determined decontamination costs are the dominant factor in the evaluation of remediation costs following a severe accident. *Id.* at 27; Tr. at 2054-55 (Dr. Lemay for New York). Dr. Lemay also testified that the decontamination factor was also determined to be one of the most sensitive parameters related to decontamination costs. New York NYS-12C Testimony at 27 (Ex. NYS000241). However, he did not challenge the decontamination factors chosen by Entergy. *Id.*

<sup>1505</sup> *Id.* at 70.

<sup>1506</sup> *Id.* at 54.

<sup>1507</sup> *Id.* at 51-55.

reasonable.<sup>1508</sup> He testified that, if all other parameters used by Entergy remain unchanged, the resulting OECR, based on changing decontamination time, is 3 to 5.7 times higher than the OECR calculated by Entergy.<sup>1509</sup> Dr. Lemay stated that “the only real support NRC Staff or Entergy’s testimony provides for the . . . TIMDEC values is NUREG-1150 and NUREG/CR-3673 . . .”<sup>1510</sup> which rely on values that are not reasonable.

Regarding the CDNFRM parameter, Dr. Lemay took issue with Entergy’s use of \$5184/person and \$13,824/person for decontamination cost values.<sup>1511</sup> As stated above, Entergy obtained these values by adjusting values from NUREG-1150 of \$3000/person and \$8000/person by the CPI change from 1986 to 2005.<sup>1512</sup> Dr. Lemay testified that the source of the decontamination cost parameters in NUREG-1150 is unknown, and thus a factual basis for the decontamination cost parameters used by Entergy, simply does not exist.<sup>1513</sup> He added that Entergy’s reliance on these NUREG-1150 numbers leads to an underestimation of the decontamination costs.<sup>1514</sup>

In support of his testimony, Dr. Lemay developed a methodology to calculate site-specific CDNFRM values for the IPEC region,<sup>1515</sup> which resulted in CDNFRM values much higher than the values calculated by Entergy using NUREG-1150

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<sup>1508</sup> ISR Report at 24-25 (Ex. NYS000242); New York NYS-12C Testimony at 51-55 (Ex. NYS-000241). It is noted, as Dr. Lemay testified, that the MACCS2 code limits decontamination times to a maximum of 1 year. ISR Report at 24 (Ex. NYS000242); Tr. at 2200-04 (Dr. Lemay for New York). Therefore, New York’s witness had to modify the source code to allow for the possibility that decontamination would take longer than the values used by Entergy (i.e., values greater than 1 year). ISR Report at 24 (Ex. NYS000242).

<sup>1509</sup> *Id.* at 24-25; New York NYS-12C Testimony at 51-55 (Ex. NYS000241).

<sup>1510</sup> New York NYS-12C Rebuttal Testimony at 48 (Ex. NYS000420).

<sup>1511</sup> ISR Report at 11 (Ex. NYS000242); New York NYS-12C Testimony at 30 (Ex. NYS000241). As stated above, the difference in these values is attributed to the use of a dose reduction factor of 3 and a dose reduction factor of 15.

<sup>1512</sup> Entergy NYS-12C Testimony at 53 (Ex. ENT000450).

<sup>1513</sup> New York NYS-12C Rebuttal Testimony at 16-25 (Ex. NYS000420).

<sup>1514</sup> New York NYS-12C Testimony at 7 (Ex. NYS000241).

<sup>1515</sup> ISR Report at 13-14 (Ex. NYS000242). First, ISR divided the spatial grid within the 50-mile radius of the IPEC region defined in the Entergy MACCS2 site input file into two discrete areas for the purpose of evaluation: (a) the “NYC metropolitan area,” and (b) “the areas outside of the NYC metropolitan area.” *Id.* at 13. Second, for each of these areas, ISR calculated the costs of light and/or heavy decontamination using decontamination costs obtained from four sources. *Id.* at 14. Third, for each approach, ISR calculated a single total cost for the IPEC region. *Id.* at 14. Fourth, ISR divided the total cost by the total population. *Id.* Lastly, ISR updated the per capita costs to 2005 dollars using the CPI. *Id.*

values.<sup>1516</sup> Given this discrepancy, Dr. Lemay asserted that Entergy's use of NUREG-1150 input values is not reasonable for the IPEC region.<sup>1517</sup>

It should be noted that Dr. Lemay made clear that his approach to calculate site-specific CDNFRM values was not an independent SAMA analysis and was not intended to be used as a substitute analysis to satisfy NEPA.<sup>1518</sup> Instead, he only suggested that his report shows that Entergy's and the NRC Staff's SAMA analysis underestimated the economic costs of a severe accident at IPEC through the use of non-site-specific generic assumptions that make their SAMA analysis unreasonable.<sup>1519</sup>

Dr. Lemay also took issue with Entergy's claim that the NUREG-1150 CDNFRM values used "have a long-established and appropriate technical basis."<sup>1520</sup> He stated that Entergy's and the NRC Staff's reliance upon undocumented and unsupported CDNFRM values is unreasonable,<sup>1521</sup> and that neither Entergy nor the NRC Staff has provided a documented basis for the CDNFRM value used in the calculation of economic costs associated with a severe accident at IPEC.<sup>1522</sup> Dr. Lemay also stated that NUREG-1150 does not contain the source of the CDNFRM value used by Entergy.<sup>1523</sup> According to him, instead of providing an extensive discussion of the methods used in developing decontamination cost values, NUREG-1150 directs the reader to NUREG/CR-4551 (i.e., a companion study published in December 1990) and NUREG/CR-4691 (i.e., the MACCS manual).<sup>1524</sup> These documents, in his opinion, do not provide a discussion of how the CDNFRM values in Sample Problem A were obtained.<sup>1525</sup>

Although recognizing that Entergy and the NRC Staff cite NUREG/CR-3673 in an attempt to justify the CDNFRM values used by the Applicant,<sup>1526</sup> Dr. Lemay

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<sup>1516</sup> See *id.* at 24-25. The range of CDNFRM values developed by New York's expert range from \$19,000/person to approximately \$900,000/person, depending on the level of decontamination modeled. *Id.* at 23.

<sup>1517</sup> New York NYS-12C Testimony at 30 (Ex. NYS000241).

<sup>1518</sup> New York NYS-12C Rebuttal Testimony at 5 (Ex. NYS000420).

<sup>1519</sup> Tr. at 2149-51 (Dr. Lemay for New York).

<sup>1520</sup> Entergy NYS-12C Testimony at 129 (Ex. ENT000450). The NRC witnesses make similar claims. NRC Staff NYS-12C/16B Testimony at 44-45 (Ex. NRC000041).

<sup>1521</sup> New York NYS-12C Rebuttal Testimony at 16-25 (Ex. NYS000420).

<sup>1522</sup> *Id.* at 3.

<sup>1523</sup> Tr. at 2149-51 (Dr. Lemay for New York).

<sup>1524</sup> New York NYS-12C Rebuttal Testimony at 20 (Ex. NYS000420) (citing NUREG-1150 at 2-20 (Ex. NYS00252A)) ("The reader seeking extensive discussion of the methods used is directed to Reference 2.8 and to Reference 2.36, which discusses the computer code used to perform the offsite consequence analysis (i.e., the MELCOR Accident Consequence Code System (MACCS), Version 1.5).").

<sup>1525</sup> *Id.* at 21.

<sup>1526</sup> *Id.* (citing NRC Staff NYS-12C/16B Testimony at 97-98 (Ex. NRC000041)).

opined that this document provides inadequate support for the values selected by Entergy.<sup>1527</sup> Dr. Lemay noted that NUREG/CR-3673 gives approximate costs of decontamination that, once adjusted for the consumer price index, match the values used by Entergy and the NRC Staff,<sup>1528</sup> and it appears that the CDNFRM values used by Entergy and the NRC Staff were based on NUREG/CR-3673 that in turn references an unpublished, currently missing document referred to as “Os84.”<sup>1529</sup> Dr. Lemay argues that “[t]he document [Os84] upon which [Entergy’s] . . . costs estimates are based, as stated in NUREG/CR-3673, does not appear to exist in a published form and therefore was not likely to have been subject to peer review or public comment.”<sup>1530</sup> Therefore, according to New York’s witness, “it is not a reliable source upon which experts in this field would base any findings.”<sup>1531</sup>

In sum, based on this testimony, New York claims that Entergy and the Staff failed to address site-specific assumptions related to values for decontamination cost and therefore has failed to meet its burden under NEPA. Additionally, New York asserts that Entergy’s values for TIMDEC are unreasonable in light of two actual severe accidents and that Entergy’s values for CDNFRM are unreasonable because they lack acceptable documentation.

#### **D. NYS-12C Findings**

Initially, we find that Entergy’s SAMA analysis is sufficiently site specific. Second, we find that Entergy’s use and the NRC Staff’s approval of the NUREG-1150 TIMDEC and CDNFRM input values was reasonable and appropriate for Indian Point and satisfies the requirements under NEPA and 10 C.F.R. § 51.53(c)(3)(ii)(L).

##### **1. Site Specificity of Entergy’s SAMA Analysis**

It bears repeating that NEPA requires that a SAMA analysis must be site specific “[b]ecause the potential consequences [of a severe accident] will largely

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<sup>1527</sup> *Id.* at 23-24.

<sup>1528</sup> *Id.* at 23.

<sup>1529</sup> *Id.*; Tr. at 2005, 2009 (Dr. Lemay for New York). The references section of NUREG/CR-3673 lists [Os84] as “Ostmyer, R.M., and G.E. Runkle, *An Assessment of Decontamination Costs and Effectiveness for Accident Radiological Releases*. Albuquerque, N.M., Sandia National Laboratories, to be published.” See Sandia National Labs, Economic Risks of Nuclear Power Reactors Accidents (NUREG/CR-3673) 8-8 (May 1984) [hereinafter NUREG/CR-3673] (Ex. NRC000058).

<sup>1530</sup> New York NYS-12C Rebuttal Testimony at 24 (Ex. NYS000420).

<sup>1531</sup> *Id.*

be the product of the location of the plant . . . .”<sup>1532</sup> That said, for the following reasons, we find that Entergy’s SAMA analysis is sufficiently site specific.

As Dr. Lemay conceded, one of the key advantages of the MACCS2 code over previous codes is that it allows the user to specify inputs, but he asserted that failing to develop site-specific input parameters leads to an underestimation of the costs associated with a severe accident at IPEC.<sup>1533</sup>

The Board finds merit in New York’s position that the *input values* utilized by Entergy and approved by the NRC Staff are not site specific, and notes that the foundational support for the derivation of these values is a missing, unpublished document. Without the basis for the input values to scrutinize, the Board finds it difficult to determine whether there is any indication that these input values are sufficiently site specific to the IPEC region. Further, the Board agrees that the “costs and methods of cleaning up after a severe accident will be very different depending on whether a reactor is surrounded by farmland, forests, suburban areas, urban areas, or hyper-urban areas.”<sup>1534</sup>

Regardless, given the fact that “MACCS2 applies the CDNFRM values on a per person basis”<sup>1535</sup> we conclude that costs in Entergy’s SAMA analysis are sufficiently site specific for the following reasons. As an NRC Staff witness, Mr. Jones, testified, “Entergy’s SAMA analysis accounted for the unique characteristics of New York City through the application of population-based cost parameters which allows full consideration of the population density and corresponding building density unique to New York City.”<sup>1536</sup> According to the NRC Staff’s witnesses, “the high-population within the SAMA area is multiplied by the CDNFRM values, when appropriate, making the cost site-specific to the New York metropolitan area.”<sup>1537</sup>

Further, Entergy’s witness, Mr. Teagarden, echoed Staff’s position, testifying that “the cost for non-farm decontamination [CDNFRM] is site-specific as we apply the population density.”<sup>1538</sup> Mr. Teagarden stated that “it’s important to note the decontamination costs are developed on a per capita basis. It’s a per person basis. So that when they’re applied within the MACCS code like some other values that are applied on a per capita basis they become site-specific.”<sup>1539</sup> We agree.

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<sup>1532</sup> *Limerick Ecology Action*, 869 F.2d at 739.

<sup>1533</sup> New York NYS-12C Testimony at 19 (Ex. NYS000241).

<sup>1534</sup> *Id.*

<sup>1535</sup> NRC Staff NYS-12C/16B Testimony at 69 (Ex. NRC000041).

<sup>1536</sup> *Id.* at 15.

<sup>1537</sup> *Id.* at 69.

<sup>1538</sup> Tr. at 2166 (Mr. Teagarden for Entergy).

<sup>1539</sup> Tr. at 1949-50 (Mr. Teagarden for Entergy).

For the IPEC SAMA analysis, Entergy developed a year 2035 population estimate based on census data and population projections that are specific to the IPEC SAMA analysis region.<sup>1540</sup> Therefore, the large population centers (including the New York City metropolitan area) within the IPEC SAMA analysis region were multiplied by the decontamination cost values.<sup>1541</sup> As Mr. Jones and Dr. Bixler testified for the NRC Staff, “[b]y using a per-person basis, this approach takes into account the site-specific high population density of New York City and the correspondingly high density of buildings.”<sup>1542</sup> Dr. Lemay for NYS agreed that the application of decontamination costs on a per person basis, as is done in MACCS2, is a valid approach.<sup>1543</sup>

Based on this testimony, we find that these input values are per capita based and were multiplied by the IPEC region population distribution, so as to result in a site-specific SAMA analysis. The Board notes the important distinction between our conclusion that the ultimate decontamination cost estimate (or the SAMA analysis) is site specific and New York’s argument that the decontamination cost input parameters are not site specific. While the Board finds that there is no evidence that the challenged NUREG-1150 values are site specific, the Board concludes that, given that the decontamination cost input parameter is a per capita number, the ultimate decontamination cost estimate (that results from multiplying the per capita input values by the site-specific IPEC region population) results in a site-specific decontamination cost estimate.

## ***2. Reasonableness of MACCS2 Input Parameters***

In addition to concluding that Entergy’s SAMA analysis is site specific, we find that the NRC Staff’s acceptance of the input parameters in Entergy’s SAMA analysis, i.e., TIMDEC and CDNFRM, was reasonable.

### ***a. TIMDEC***

It bears emphasis that a SAMA analysis examines the mean annual con-

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<sup>1540</sup> Entergy NYS-12C Testimony at 48 (Ex. ENT000450); Tr. at 2139-40 (Mr. Teagarden for Entergy). New York also challenged Entergy’s population projection, which is discussed in Section VIII beginning at page 475.

<sup>1541</sup> NRC Staff NYS-12C/16B Testimony at 69 (Ex. NRC000041); Tr. at 1950 (Mr. Teagarden for Entergy).

<sup>1542</sup> NRC Staff NYS-12C/16B Testimony at 41 (Ex. NRC000041); *see also id.* at 69 (“The detailed methodology described in NUREG/CR-4551 and applied at the per-person level provides a reasonable and tested approach for use in the SAMA analysis.”).

<sup>1543</sup> Tr. at 2136 (Dr. Lemay for New York) (“I think that whoever came up with the decontamination cost per person it’s a brilliant insight . . .”).

sequences of numerous postulated accident scenarios, spanning a spectrum of potential initiating events, accident sequences, and severity of consequences.<sup>1544</sup> This is done for the entire 50-mile radius region surrounding a plant.<sup>1545</sup> As Entergy's and the NRC Staff's witnesses testified, a SAMA analysis does not seek to "exactly mimic a real-life scenario"<sup>1546</sup> in modeling highly localized and variable decontamination activities, or to provide detailed cleanup costs associated with a single, specific accident scenario.<sup>1547</sup> Against this backdrop, the Board must determine if the NRC Staff was reasonable in approving Entergy's use of the TIMDEC parameters from NUREG-1150 for the IPEC SAMA analysis. For the following reasons, we find that the approval of the NUREG-1150 TIMDEC parameters was reasonable.

As noted above, TIMDEC is a MACCS2 input parameter that accounts for the time it would take to decontaminate following a severe accident.<sup>1548</sup> In MACCS2, TIMDEC represents an average time period during which people are temporarily interdicted while decontamination activities are completed to reduce the dose by the specified dose reduction factor.<sup>1549</sup> This same average was used for each and every scenario, from the most minimally contaminating event sequence to the worst. It is not intended to be representative of any specific scenario. Following the expiration of the TIMDEC period, and upon satisfaction of the specified habitability criteria, MACCS2 assumes the relocation of people back to their residences.<sup>1550</sup> Thus, TIMDEC is only an average of the time that an individual is relocated due to dose constraints.<sup>1551</sup>

Relying on the testimony and reports of Dr. Lemay, New York argues that the TIMDEC parameters used by Entergy and accepted by the NRC Staff are not rationally related to the IPEC region.<sup>1552</sup> Dr. Lemay suggested that characteristics such as building and population density influence the time it takes to decontaminate and, thus, influence TIMDEC.<sup>1553</sup> His position is based on an ob-

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<sup>1544</sup> Entergy NYS-12C Testimony at 18 (Ex. ENT000450).

<sup>1545</sup> *Id.*

<sup>1546</sup> Tr. at 2189 (Mr. Teagarden for Entergy).

<sup>1547</sup> NRC Staff NYS-12C/16B Testimony at 90 (Ex. NRC000041) ("As with any modeling effort, it is likely that an actual decontamination effort would depart from the modeled inputs based on the extent of the accident, environmental conditions during the clean-up, and actual resources expended during the clean-up.").

<sup>1548</sup> MACCS2 User's Guide at 7-10 (Ex. NYS000243).

<sup>1549</sup> Entergy NYS-12C Testimony at 77 (Ex. ENT000450).

<sup>1550</sup> *Id.*

<sup>1551</sup> *Id.*

<sup>1552</sup> New York NYS-12C Testimony at 51-55 (Ex. NYS000241).

<sup>1553</sup> ISR Report at 24-25 (Ex. NYS000242). Dr. Lemay also suggested that the types of radionuclides released during a severe reactor accident influence decontamination times. New York NYS-12C Testimony at 36 (Ex. NYS000241).

servation of the time required to decontaminate the areas surrounding Chernobyl and Fukushima.<sup>1554</sup>

Despite New York's argument that the TIMDEC input values are not realistic, the record shows that Entergy's use of these TIMDEC values is reasonable for three reasons. First, the analysis of Chernobyl relied on by New York, even if it were fully presented, is for a single scenario of an extreme case. If it were possible to use it along with case/scenario-specific TIMDECs, its inclusion in the SAMA analysis would require weighting it by its low probability of occurrence. Second, we note that the NRC Staff's witnesses Mr. Harrison and Dr. Ghosh testified that the NRC has examined decontamination times for more than 37 years, beginning in 1975 with the Reactor Safety Study, which discussed decontamination activities that are capable of restoring areas to habitability quickly given sufficient resources.<sup>1555</sup> These witnesses further testified that the genesis of the values used by Entergy can be traced back to NUREG/CR-3673.<sup>1556</sup> This document identified an average effort required to restore habitability to an area after the most severe type of reactor accident.<sup>1557</sup> It states an average cleanup is expected to take 90 days with approximately 46,000 workers for this most severe type of reactor accident.<sup>1558</sup> Thus, 90 days is viewed as an average time to complete decontamination efforts following the most severe reactor accident.<sup>1559</sup> As the NRC Staff witnesses testified, some severe accidents that result in little cleanup being required may take less time or involve fewer resources, and more severe accidents would take longer.<sup>1560</sup> In either situation, NUREG/CR-3673 identified the time to complete decontamination efforts to be about 90 days or less when averaged over all scenarios of severe reactor accidents.<sup>1561</sup> NUREG-1150 adopted 60 days and 120 days as the values to be used as the average times to be expected to achieve dose reduction factors of 3 and 15, respectively, when examining a wide spectrum of severe accident scenarios.<sup>1562</sup> Given that the NRC has examined decontamination times for more than 37 years and that the origin of the 90-day decontamination time (and the related 60-day and 120-day values) is known and reviewable and based upon an average over a wide spectrum of severe

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<sup>1554</sup> New York NYS-12C Testimony at 52-55 (Ex. NYS000241).

<sup>1555</sup> NRC Staff NYS-12C/16B Testimony at 89 (Ex. NRC000041).

<sup>1556</sup> *Id.* at 90.

<sup>1557</sup> *Id.*

<sup>1558</sup> *Id.*

<sup>1559</sup> *Id.* Dr. Lemay agreed that the TIMDEC value is intended to be an average value. *See* Tr. at 2181 (Dr. Lemay for New York) ("At the end of this average decontamination period, people are allowed back to their homes.").

<sup>1560</sup> NRC Staff NYS-12C/16B Testimony at 90 (Ex. NRC000041).

<sup>1561</sup> *Id.*

<sup>1562</sup> Entergy NYS-12C Testimony at 86 (Ex. ENT000450).

accident scenarios, the Board considers it reasonable for Entergy to have adopted 60-day and 120-day average decontamination time values from NUREG-1150 for dose reduction factors of 3 and 15, respectively.

Third, we find that Entergy's selected TIMDEC values are reasonable given that the decontamination times represent the average over all the modeled severe accidents, not solely worst-case scenarios. As mentioned, a SAMA analysis "is not based on either the best-case or the worst-case accident scenario, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios."<sup>1563</sup> According to the NRC Staff's witnesses Mr. Harrison and Dr. Ghosh, the decontamination times selected by Entergy are appropriate given the need to develop a decontamination time representative of all possible severe accident scenarios.<sup>1564</sup> According to the NRC Staff, a 1990 report (i.e., NUREG/CR-4551) reviewed the MACCS2 input parameters used in NUREG-1150, including TIMDEC, and again concluded that an "average cleanup was expected to take 90 days . . . for this most severe type of reactor accident."<sup>1565</sup> Given the evidence before us, we find that their conclusion was not unreasonable.

According to the NRC Staff's witnesses, "to be able to provide a reliable and reasonable analysis, the decontamination times must represent all the modeled severe accidents including ones that require little decontamination."<sup>1566</sup> We agree. As noted by the NRC Staff's experts, "[a]s with any modeling effort, it is likely that an actual decontamination effort would depart from the modeled inputs based on the extent of the accident, environmental conditions during the cleanup, and actual resources expended during the cleanup."<sup>1567</sup>

Given the purpose of a SAMA analysis, we find that Entergy's use of these average numbers as the input value for TIMDEC is reasonable. As we have emphasized, a SAMA analysis is not designed to model a single radiological release event at a single moment in time. Rather, a SAMA analysis "models numerous accident release conditions that could, based on probabilistic analysis, occur at any time under varying weather conditions during a one-year period. The goal is to estimate annual average impacts for the entire 50-mile radius study area."<sup>1568</sup> Accordingly, given the legitimate goal of a SAMA analysis and the input requirement of the MACCS2 code for a single average decontamination time as an input value which is representative of all possible severe accident scenarios,

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<sup>1563</sup> *Pilgrim*, CLI-12-15, 75 NRC at 708.

<sup>1564</sup> NRC Staff NYS-12C/16B Testimony at 89 (Ex. NRC000041). The NRC Staff argued that New York's alternative times are based on worst-case scenarios.

<sup>1565</sup> *Id.* at 90 (citing NUREG/CR-4551, Vol. 2, Pt. 7, "Evaluation of Severe Accident Risks: Quantification of Major Input Parameters — MACCS Input" (Ex. ENT000059)).

<sup>1566</sup> *Id.*

<sup>1567</sup> *Id.*

<sup>1568</sup> Entergy NYS-12C Testimony at 18 (Ex. ENT000450) (emphasis omitted).

we find that Entergy's use and the NRC's approval of these TIMDEC values is reasonable and conclude that the NRC Staff's approval of the TIMDEC input values satisfies the requirements under NEPA and 10 C.F.R. § 51.53(c)(3)(ii)(L).

*b. CDNFRM*

New York's primary argument concerning the CDNFRM values used by Entergy, and accepted by the NRC Staff, is that NUREG-1150's pedigree does not justify the use of its numbers. Accordingly, the last issue to be resolved for this contention presents a unique question: can a license renewal applicant, when performing a SAMA analysis, reasonably rely on input values whose basis cannot be directly reviewed? Despite not being able to review the source of the input values for CDNFRM, for the reasons set forth below, the Board answers this question in the affirmative and finds that the NRC Staff's approval of the NUREG-1150 CDNFRM values was reasonable. Given the sensitivity of the MACCS2 model to the CDNFRM parameter, Dr. Lemay testified for New York that it is unreasonable to rely on a value whose source is not accessible, because neither NUREG-1150 nor NUREG/CR-4551 explains how the CDNFRM values were developed.<sup>1569</sup>

We agree with New York with regard to the absence of source documentation of the NUREG-1150 values. And we agree with New York that sound science demands that if analysis results are determined to be sensitive to a particular input parameter, then that parameter should be closely scrutinized. Further, the Board agrees with New York that it is difficult to scrutinize a value whose source does not exist. Despite being in agreement with New York on these points, we conclude that Entergy's reliance on the input values obtained from NUREG-1150 is justified by the peer reviews conducted on documents using the same CDNFRM value, and that the Applicant's use of this value was reasonable.

Entergy's witnesses stated that the use of the challenged NUREG-1150 values is standard for SAMA analyses.<sup>1570</sup> They noted that, to their knowledge, all prior NRC license renewal applicants have used these same values (as appropriately escalated) in their SAMA analyses,<sup>1571</sup> and that the key economic inputs were vetted before their inclusion in NUREG-1150. We find that Entergy and the NRC

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<sup>1569</sup> Tr. at 2004-05 (Dr. Lemay for New York).

<sup>1570</sup> Entergy NYS-12C Testimony at 61 (Ex. ENT000450). NRC guidance states that “[s]tandard MACCS2 modeling for NRC assessments uses the parameters in Sample Problem A.” NUREG/CR-6953, Vol. 1, “Review of NUREG-0654, Supp. 3, Criteria for Protective Action Recommendations for Severe Accidents” at 32 (Dec. 2007) (Ex. ENT000291).

<sup>1571</sup> Tr. at 1951 (Mr. Teagarden for Entergy) (“And those values to our knowledge have been used in every SAMA analysis of the Entergy panel’s knowledge being based in NUREG-1150 and then escalated for time.”).

Staff were justified in relying on the secondary peer reviews of the economic cost variables. As reflected in NUREG/CR-4551,

[o]ffsite accident consequences for NUREG-1150 source terms were estimated using the MELCOR Accident Consequence Code System (MACCS). Before these calculations were performed, most MACCS input parameters were reviewed, and for each parameter reviewed, a best-estimate value was recommended. This report presents the results of these reviews. Specifically, recommended values and the basis for their selection are presented for MACCS . . . economic input parameters.<sup>1572</sup>

Thus, the Board finds that the economic input parameters, including CDNFRM, were reviewed and a best estimate was recommended during the NUREG-1150 peer review process.

The NUREG-1150 CDNFRM values can be traced to NUREG/CR-3673.<sup>1573</sup> NUREG/CR-3673 states that it developed and employed “improved models to estimate the economic risks from unanticipated events which occur during U.S. [light water reactor] LWR operation.”<sup>1574</sup> As part of this effort, the study estimated the offsite costs of post-accident population protective measures and public health impacts for severe LWR accidents,<sup>1575</sup> including non-farm area decontamination costs (i.e., CDNFRM). NUREG/CR-3673 states that “[t]he cost estimates used in this study for various levels of decontamination effort in an area are taken from a detailed review of decontamination effectiveness and costs performed at Sandia National Laboratories (SNL).”<sup>1576</sup> The “detailed review” apparently was documented in the unpublished report by Robert Ostmeyer and Gene Runkle (i.e., Os84 or the Ostmeyer report). None of the parties or their witnesses could locate a copy of the report.<sup>1577</sup> Herein lies the problem — the source of the MACCS2 CDNFRM input values cannot be reviewed.

Nevertheless, the Board does not find that the document’s unavailability renders the NRC Staff’s or Entergy’s reliance on the NUREG-1150 decontamination cost values “altogether unreasonable” under NEPA.<sup>1578</sup> The NUREG/CR-3673 authors had access to the Ostmeyer report when they prepared NUREG/CR-3673.<sup>1579</sup>

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<sup>1572</sup> NUREG/CR-4551, Vol. 2, Rev. 1, Pt. 7 at iii/iv (Ex. NYS000248).

<sup>1573</sup> Entergy NYS-12C Testimony at 57 (Ex. ENT000450).

<sup>1574</sup> NUREG/CR-3673 at EX-1 (Ex. ENT000466).

<sup>1575</sup> *Id.* NUREG/CR-3673 states that offsite costs associated with population evacuation and temporary relocation, agricultural product disposal, land and property decontamination, land interdiction, and public health impacts and medical care costs are included in the new economic consequence models. *Id.* at EX-1.

<sup>1576</sup> New York NYS-12C Rebuttal Testimony at 23 (Ex. NYS000420).

<sup>1577</sup> Tr. at 2005 (Dr. Lemay for New York), 2009 (Mr. Jones for the NRC Staff).

<sup>1578</sup> *Pilgrim*, CLI-12-1, 75 NRC 39, 57 (2012).

<sup>1579</sup> Tr. at 2010 (Dr. Ghosh for the NRC Staff).

Moreover, NUREG/CR-3673 expressly states that Dr. Ostmeyer provided technical assistance and advice during the preparation of NUREG/CR-3673.<sup>1580</sup> Thus, we do not agree with New York that NUREG/CR-3673 is necessarily an unreliable source.<sup>1581</sup>

Consistent with NEPA's rule of reason, the Applicant and the NRC Staff acted "based on the best available information and analysis" in completing the SAMA evaluation.<sup>1582</sup> NEPA does not require agencies to resolve all uncertainties, including, in this case, uncertainties associated with the NUREG-1150 values used in the IPEC SAMA analysis.<sup>1583</sup>

As mentioned above, Entergy and the NRC Staff witnesses testified that they considered the appropriateness of the NUREG-1150 numbers to the IPEC SAMA analysis. Ms. Potts for Entergy, who helped prepare the IPEC SAMA analysis, testified that she and other Entergy technical reviewers considered the applicability of the NUREG-1150 values and concluded that they are reasonable values for IPEC.<sup>1584</sup> New York, thru Dr. Lemay, made clear, and the Board is sympathetic to its position, that it would be difficult to determine the appropriateness of a number when the basis of that number is not known. But, given that NUREG-1150 was made available for public comment and was subjected to peer review, and based upon the foregoing discussion of the situation and the witnesses' testimony, we find that the use of the NUREG-1150 CDNFRM values was not unreasonable.

Lastly, the Board notes Entergy's and the NRC Staff's argument that the alternative CDNFRM values proposed by New York are not reasonable. But conversely, at least in this instance, New York was not required to develop reasonable alternative CDNFRM values.<sup>1585</sup> Instead, it is ultimately the NRC Staff's burden to demonstrate the reasonableness of the SAMA analysis. Moreover, New York does not appear to be proposing the alternate CDNFRM values as replacement values. Instead, New York's witness, Dr. Lemay, only suggests that his proposed CDNFRM values call into question the reasonableness of Entergy's values. Dr.

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<sup>1580</sup> NUREG/CR-3673 at xix (Ex. ENT000466).

<sup>1581</sup> New York NYS-12C Rebuttal Testimony at 24 (Ex. NYS000420).

<sup>1582</sup> *Balt. Gas & Elec. Co.*, 462 U.S. at 102.

<sup>1583</sup> *Izaak Walton League of America v. Marsh*, 655 F.2d 346, 377 (D.C. Cir. 1981).

<sup>1584</sup> Tr. at 2067-69, 2080 (Ms. Potts for Entergy). Ms. Potts noted that Entergy described the bases for this conclusion in its February 2008 RAI Response. Tr. at 2080-81 (Ms. Potts for Entergy).

<sup>1585</sup> As we noted previously, the Commission has made it clear that a Board's consideration of a NEPA contention is to be more than an EIS fine-tuning session, suggesting that, at least in instances when a challenge is made to the validity of the publicly available analysis upon which a Staff modeling input finding is made, there must be some suggestion that there is a reason to believe that using the Staff-endorsed value will provide a result that significantly skews the impact being assessed. In this instance, New York's attempted showing that there is no valid support for this significant input parameter, if successfully established, would provide that support to the degree that it essentially would provide a "null" value for this significant factor as an input to the MACCS2 model.

Lemay merely offered an alternative approach to developing an appropriate CD-NFRM value — a value that has a documented source history whose basis can be explored. Dr. Lemay stated:

for better or worse, you can criticize my values. You can examine them. You can pull them apart. You can discuss the number of floors I've used, the number of surfaces I've used and it's understandable and it's something that you can examine. We can't do that with the other numbers.<sup>1586</sup>

The Board agrees with Dr. Lemay — having a documented source to be scrutinized and reviewed would have been useful in reviewing Entergy's reliance on the contested CDNFRM values. But we are mindful that this is a NEPA-based contention, and that all NEPA requirements are governed by a rule of reason. We are further guided by the Commission's holdings that "the proper question is not whether there are plausible alternative choices for use in the analysis, but whether the analysis that was done is reasonable under NEPA";<sup>1587</sup> and therefore, "the question is not whether more or different analysis can be done" since "it will always be possible to envision and propose some alternate approach, some additional detail to include, some refinement."<sup>1588</sup> Thus, for the reasons stated above, we find that the lack of source documentation for the CDNFRM parameter does not, under NEPA, prove fatal to Entergy's SAMA analysis.

#### E. Conclusions of Law

We find that a preponderance of the evidence submitted regarding this contention supports the conclusion that Entergy's SAMA analysis is sufficiently site specific and a reasonable method under NEPA standards given that key input parameters are per capita based and multiplied by a site-specific population distribution. Furthermore, Entergy's use of and the NRC's approval of the TIMDEC and CDNFRM values was reasonable and satisfies the requirements under NEPA and 10 C.F.R. § 51.53(c)(3)(ii)(L). It was reasonable for Entergy to use the selected TIMDEC values given its technical basis and what the values represent. Additionally, it was not unreasonable for Entergy to rely on the CDNFRM value given the level of review of NUREG-1150 and its predecessor documents. Accordingly, NYS-12C is resolved in favor of the NRC Staff and the issues raised by this contention do not prevent the Commission from issuing the requested renewal licenses.

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<sup>1586</sup> Tr. at 2138 (Dr. Lemay for New York).

<sup>1587</sup> Seabrook, CLI-12-5, 75 NRC at 323.

<sup>1588</sup> Pilgrim, CLI-12-15, 75 NRC at 714.

## VIII. NEPA CONTENTION NYS-16B (SAMA — POPULATION ESTIMATES)

### A. Statement of Contention NYS-16B

NYS-16B, a SAMA contention that challenges population estimates, as litigated on October 22, 2012, reads as follows:

[New York] asserts two significant errors in the population estimate [used in Entergy's SAMA analysis for Indian Point]: (1) failure to account for census undercount; and (2) failure to account for the commuter population present within the 50 mile zone of Indian Point.<sup>1589</sup>

### B. NYS-16B Background

#### I. NYS-16B Procedural History

As filed by New York on November 30, 2007, NYS-16 challenged Entergy's assertion, in its SAMA analysis, that it conservatively estimated the population radiation dose resulting from a severe accident.<sup>1590</sup> New York questioned Entergy's population projection for 2035, pointing out that the U.S. Census estimate of the population of Manhattan in 2006 is larger than Entergy's 2035 projection.<sup>1591</sup>

NYS-16 was admitted on July 31, 2008 “to the extent it challenge[d] whether the population projections used by Entergy are underestimated.”<sup>1592</sup> We stated that this is a “question of model input data material to the making of accurate SAMA analyses.”<sup>1593</sup>

On February 27, 2009, New York submitted NYS-16A in response to the NRC Staff's December 2008 draft supplemental environmental impact statement (SEIS).<sup>1594</sup> NYS-16A largely repeated the arguments discussed in New York's

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<sup>1589</sup> State of New York, Entergy Nuclear Operations, Inc., and NRC Staff Joint Stipulation (Jan. 23, 2012) at 2.

<sup>1590</sup> New York Petition at 163-64. New York's original contention also alleged that Entergy's air dispersion model would not accurately predict the geographic dispersion of radionuclides released in a severe accident. New York later decided “not to pursue the part of Contention NYS-16 challenging Entergy's air dispersion model . . . .” State of New York Initial Statement of Position Contention NYS-16/16A/16B (“NYS-16B”) (Dec. 16, 2011) at 1 n.1 (Ex. NYS000206). *See also* State of New York, Entergy Nuclear Operations, Inc., and NRC Staff Joint Stipulation (Jan. 23, 2012) at 2.

<sup>1591</sup> New York Petition at 164 n.37.

<sup>1592</sup> LBP-08-13, 68 NRC at 112.

<sup>1593</sup> *Id.*

<sup>1594</sup> *See* State of New York Contentions Concerning NRC Staff's Draft Supplemental Environmental Impact Statement (Feb. 27, 2009) at 9.

original petition but focused on the SEIS rather than Entergy’s ER.<sup>1595</sup> We admitted NYS-16A on June 16, 2009, “to the degree that the Draft SEIS fails to address the issues raised by New York in NYS-16 . . . ”<sup>1596</sup> and noted that New York would not be allowed to address arguments that were beyond the limiting language of the admitted contention.<sup>1597</sup>

On March 11, 2010, New York filed NYS-16B in response to Entergy’s December 2009 SAMA reanalysis.<sup>1598</sup> Again, NYS-16B largely repeated the arguments discussed in New York’s original petition and its February 27, 2009, filing.<sup>1599</sup> In a footnote, New York asserted that Entergy’s calculations also underestimate the population dose for failing to count tourists and commuters.<sup>1600</sup> We admitted NYS-16B on June 30, 2010.<sup>1601</sup>

On January 30, 2012, Entergy filed a motion *in limine* seeking to exclude portions of New York’s expert report and three exhibits on the grounds that New York has raised a new issue in its prefiled testimony and corresponding evidentiary submission — Entergy’s alleged failure to account for “census undercount.”<sup>1602</sup> The NRC Staff supported Entergy’s motion *in limine*<sup>1603</sup> and New York opposed it.<sup>1604</sup> We denied Entergy’s motion on March 6, 2012.<sup>1605</sup> In our order denying Entergy’s motion, we stated that the issue of census undercount is not a new issue noting that we admitted NYS-16 to the extent that it challenges whether the population projections used by Entergy are underestimated.<sup>1606</sup> We further noted

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<sup>1595</sup> See *id.* at 9-14.

<sup>1596</sup> See Order (Ruling on New York State’s New and Amended Contentions) (June 16, 2009) at 6 (unpublished).

<sup>1597</sup> See *id.*

<sup>1598</sup> See State of New York’s Motion for Leave to File New and Amended Contentions Concerning the December 2009 Reanalysis of Severe Accident Mitigation Alternatives (Mar. 11, 2010).

<sup>1599</sup> See *id.* at 7-12.

<sup>1600</sup> See *id.* at 8 n.3.

<sup>1601</sup> See LBP-10-13, 71 NRC at 686.

<sup>1602</sup> See Applicant’s Motion *in Limine* to Exclude Portions of the Prefiled Testimony, Report, and Exhibits Filed by New York State and Dr. Stephen Sheppard in Support of Consolidated Contention NYS-16B (Jan. 30, 2012) at 2.

<sup>1603</sup> See NRC Staff’s Answer to Applicant’s Motion *in Limine* to Exclude Portions of the Prefiled Testimony, Report, and Exhibits Filed by New York State and Dr. Stephen Sheppard in Support of Consolidated Contention NYS-16B (Feb. 9, 2012).

<sup>1604</sup> See State of New York’s Answer to Entergy’s Motion *in Limine* to Exclude Portions of Pre-Filed Testimony and Exhibits for Consolidated Contention NYS-16B (Feb. 17, 2012).

<sup>1605</sup> Order (Granting in Part and Denying in Part Applicant’s Motions in Limine) (Mar. 6, 2012) at 11 (unpublished).

<sup>1606</sup> *Id.* at 10.

that any claim by Entergy or the NRC Staff that census undercount is not within the scope of the contention was undercut by the parties' joint stipulation.<sup>1607</sup>

## **2. Legal Standards and Issues Related to NYS-16B**

NYS-16B challenges the acceptance of Entergy's SAMA analysis in the FSEIS. The legal standards and issues associated with SAMAs were discussed in detail in Section VII.B.2 beginning at page 451, and will not be repeated here.<sup>1608</sup>

## **3. Evidentiary Record Related to NYS-16B**

### *a. Identification of Witnesses Who Provided Testimony Relevant to NYS-16B*

Entergy presented four witnesses to provide testimony on NYS-16B — Lori A. Potts,<sup>1609</sup> Dr. Kevin R. O'Kula,<sup>1610</sup> Grant A. Teagarden,<sup>1611</sup> and Jerry L. Riggs.<sup>1612</sup> On March 28, 2012, Entergy filed the written testimony of these witnesses listed above,<sup>1613</sup> which was admitted into evidence on October 15, 2012.<sup>1614</sup>

The NRC Staff presented four witnesses to provide testimony on NYS-16B — Dr. Nathan E. Bixler,<sup>1615</sup> Dr. S. Tina Ghosh,<sup>1616</sup> Joseph A. Jones,<sup>1617</sup> and Donald G. Harrison.<sup>1618</sup> On March 30, 2012, the NRC Staff filed the written testimony of these four witnesses,<sup>1619</sup> which was admitted into evidence on October 15, 2012.<sup>1620</sup>

New York presented the testimony of one witness on NYS-16B — Dr. Stephen

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<sup>1607</sup> *Id.* at 11. See also State of New York, Entergy Nuclear Operations, Inc., and NRC Staff Joint Stipulation (Jan. 23, 2012) at 2.

<sup>1608</sup> See *supra* Section VII.B.2.

<sup>1609</sup> Curriculum Vitae of Lori A. Potts (Ex. ENT000004).

<sup>1610</sup> Curriculum Vitae of Kevin R. O'Kula (Ex. ENT000005).

<sup>1611</sup> Curriculum Vitae of Grant A. Teagarden (Ex. ENT000007).

<sup>1612</sup> Curriculum Vitae of Jerry L. Riggs (Ex. ENT000008).

<sup>1613</sup> See Testimony of Entergy Witnesses Lori Potts, Kevin O'Kula, Grant Teagarden, and Jerry Riggs on Consolidated Contention NYS-16B (Severe Accident Mitigation Alternatives Analysis) (Mar. 28, 2012) (Ex. ENT000003) [hereinafter Entergy NYS-16B Testimony].

<sup>1614</sup> Tr. at 1269 (Judge McDade).

<sup>1615</sup> Nathan Bixler Statement of Professional Qualifications (Ex. NRC000042).

<sup>1616</sup> Tina Ghosh Statement of Professional Qualifications (Ex. NRC000043).

<sup>1617</sup> Joseph Jones Statement of Professional Qualifications (Ex. NRC000044).

<sup>1618</sup> Donald Harrison Statement of Professional Qualifications (Ex. NRC000045).

<sup>1619</sup> See NRC Staff Testimony of Nathan E. Bixler, S. Tina Ghosh, Joseph A. Jones, and Donald G. Harrison Concerning NYS' Contentions NYS 12/16 (Mar. 30, 2012) (Ex. NRC000041) [hereinafter NRC Staff NYS-12C/16B Testimony].

<sup>1620</sup> Tr. at 1269 (Judge McDade).

C. Sheppard.<sup>1621</sup> On December 16, 2011, New York filed the written testimony of Dr. Sheppard.<sup>1622</sup> On June 29, 2012, New York submitted written rebuttal testimony by Dr. Sheppard.<sup>1623</sup> Both of these submissions were admitted into evidence on October 15, 2012.<sup>1624</sup>

*b. Identification of Admitted Exhibits Relevant to NYS-16B*

Relevant to NYS-16B, Entergy submitted thirty-one exhibits, the NRC Staff submitted twenty-two exhibits, and New York submitted thirty-eight exhibits. These exhibits were admitted into the record on October 15 and 22, 2012, and February 19, 2013.<sup>1625</sup>

*c. Relevant Guidance Documents and Reports*

1. Nuclear Energy Institute, Rev. A, Severe Accident Mitigation Alternatives (SAMA Analysis) Guidance Document (NEI 05-01) (Nov. 2005) (Ex. NYS000287). A description of the document was provided at page 456, above, as it also pertains to NYS-12C.

2. Enercon Services, Inc., Site Specific MACCS2 Input Data for Indian Point Energy Center, Rev. 1 (Dec. 1, 2009) (Ex. NYSR00211). This report reflects the work performed by Enercon Services, Inc. (i.e., Entergy's consultant) in developing the projected year 2035 population estimate.<sup>1626</sup> This report provides the details of Entergy's 2035 population projection used in performing its SAMA analysis.<sup>1627</sup>

3. Report of Stephen C. Sheppard, Ph.D. in Support of Contention NYS-16/16A/16B ("NYS-16B") (Dec. 16, 2011) (Ex. NYS000209). This document is Dr. Sheppard's expert report that was submitted in conjunction with his prefilled testimony. Dr. Sheppard's report discusses the methodology used by Entergy to develop the estimated 2035 population, explains the alleged inadequacies in

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<sup>1621</sup> Curriculum Vitae of Stephen C. Sheppard (Ex. NYS000208).

<sup>1622</sup> See Pre-Filed Written Testimony of Dr. Stephen Sheppard, Ph.D. Regarding Contention NYS-16/16A/16B ("NYS-16B") (Dec. 16, 2011) (Ex. NYS000207) [hereinafter New York NYS-16B Testimony].

<sup>1623</sup> See Rebuttal Testimony of Dr. Stephen C. Sheppard, Ph.D. Regarding Contention NYS-16/16A/16B ("NYS-16B") (June 29, 2012) (Ex. NYS000404) [hereinafter New York NYS-16B Rebuttal Testimony].

<sup>1624</sup> Tr. at 1269 (Judge McDade).

<sup>1625</sup> *Id.*; *id.* at 2519 (admitting Ex. ENT000589); see also Order (Granting New York's Motion for Leave to Submit Revised Exhibits) (Feb. 19, 2013) (unpublished) (admitting Ex. NYSR00211).

<sup>1626</sup> See Enercon Services, Inc., Site Specific MACCS2 Input Data for Indian Point Energy Center, Rev. 1 (Dec. 1, 2009) (Ex. NYSR00211) [hereinafter Enercon Report].

<sup>1627</sup> *Id.* at 1-1 to 2-7.

Entergy's methods, and provides what he believes to be a more appropriate estimate of the 2035 population.<sup>1628</sup>

### C. Evidence Related to SAMA — Population Estimates

#### 1. Entergy's SAMA Analysis Methodology

Entergy's witnesses, Dr. O'Kula and Mr. Teagarden, testified that they used the MACCS2 computer code to perform the IPEC SAMA analysis.<sup>1629</sup> They explained that MACCS2 was used to estimate plant-specific offsite population doses and economic consequences that could result from the postulated accidental release of radioactive materials to the atmosphere during a severe accident at a nuclear power plant.<sup>1630</sup>

This contention challenges Entergy's population estimates that are used in the MACCS2 code to estimate offsite consequences. Dr. O'Kula and Mr. Teagarden testified for Entergy that MACCS2 executes three modules in sequence to calculate SAMA values: ATMOS, EARLY, and CHRONC.<sup>1631</sup> They stated that population data are used as inputs to the EARLY and CHRONC modules.<sup>1632</sup> More specifically, they testified that the EARLY module uses population data to calculate radiation dose consequences due to exposure during the first 7 days from the time of the release (i.e., the emergency phase), and the CHRONC module uses population data to calculate (1) the long-term radiation doses due to exposure after the emergency phase; and (2) the economic impacts from each accident sequence including the economic cost of short-term and long-term protective actions.<sup>1633</sup>

Entergy's witnesses then explained how, in calculating severe accident consequences, MACCS2 takes into account variations in population density.<sup>1634</sup> Using the estimated population and other site-specific and region-specific inputs, MACCS2 calculates the population dose and economic cost based on the simulated radiological release and then sums the results.<sup>1635</sup> Next, according

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<sup>1628</sup> Report of Dr. Stephen C. Sheppard, Ph.D. in Support of Contention NYS-16/16A/16B ("NYS-16B") (Dec. 16, 2011) (Ex. NYS000209) [hereinafter Sheppard Report].

<sup>1629</sup> Entergy NYS-16B Testimony at 24 (Ex. ENT000003).

<sup>1630</sup> *Id.* at 23.

<sup>1631</sup> *Id.* at 24 (citing MACCS2 User's Guide at 2-1 (Ex. NYS000243)).

<sup>1632</sup> *Id.* (citing MACCS2 User's Guide at 2-2 (Ex. NYS000243)).

<sup>1633</sup> *Id.* (citing MACCS2 User's Guide at 2-2 (Ex. NYS000243)).

<sup>1634</sup> *Id.* at 24-25.

<sup>1635</sup> *Id.* at 25-26; Tr. at 1928 (Mr. Teagarden for Entergy). MACCS2 uses a polar-coordinate spatial grid to structure the transport downwind of a plume under various meteorological conditions. MACCS2 User's Guide at 2-4 to -5 (Ex. NYS000243). The spatial grid is the 50-mile region divided into a polar coordinate grid with IPEC in the center. *Id.* The polar grid is comprised of radial rings centered on the site with boundaries at various radii. *Id.*

to Entergy's witnesses, the offsite population dose and offsite economic cost consequence values are multiplied by the calculated severe accident frequency results obtained from the PRA models.<sup>1636</sup> This calculation results in the key risk values for determining potentially cost-beneficial SAMAs: (1) population dose risk (PDR); and (2) the offsite economic cost-risk (OECR).<sup>1637</sup> The individual PDRs and OECRs for the different accident scenarios are summed to determine the overall PDR and overall OECR for the SAMA analysis.<sup>1638</sup>

## **2. The Calculation of Entergy's 2035 Population Estimate**

Entergy's witnesses testified that Entergy developed the 2035 population estimate used in the IPEC SAMA analysis in accordance with the guidance of NEI 05-01.<sup>1639</sup> NEI 05-01 states, “[t]ypically, with increasing population, the predicted population is estimated for a year within the second half of the period of extended operation. Extrapolation to a later date, and therefore a larger population, adds conservatism to the analysis.”<sup>1640</sup> Entergy's LRA states that the year 2035 was chosen because it is the last year of the IP3 extended operating period and 2 years after the end of the IP2 extended operating period.<sup>1641</sup>

Ms. Potts and Mr. Riggs testified that in order to estimate the 2035 population, Entergy first determined the year 2000 permanent population within a 50-mile radius of IPEC, and then projected those populations out to the year 2035.<sup>1642</sup> To determine the year 2000 permanent population for each of the counties represented within the 50-mile radius of IPEC, Entergy used areal weighting, which assumes a constant population distribution over the area assessed, to account for those counties that were not completely within the region of interest.<sup>1643</sup> Entergy then used population estimates from state and local governments, based on published 2000 U.S. Census data, to determine the population for each county.<sup>1644</sup>

The testimony reflected that to project the 2000 population estimate to year 2035, Entergy first obtained available county-level population projection esti-

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<sup>1636</sup> Entergy NYS-16B Testimony at 27 (Ex. ENT000003).

<sup>1637</sup> *Id.*

<sup>1638</sup> *Id.*

<sup>1639</sup> *Id.* at 31-32.

<sup>1640</sup> Nuclear Energy Institute, Severe Accident Mitigation Alternatives (SAMA Analysis) Guidance Document (NEI 05-01) at 13 (Nov. 2005) (Ex. NYS000287) [hereinafter NEI 05-01].

<sup>1641</sup> License Renewal Application at 2-36 (Ex. ENT00015B).

<sup>1642</sup> Entergy NYS-16B Testimony at 32 (Ex. ENT000003) (citing Enercon Report at 1-1 to -3 (Ex. NYSR00211)).

<sup>1643</sup> *Id.* at 35.

<sup>1644</sup> *Id.* at 32.

mates from New York and the surrounding states.<sup>1645</sup> For each county, Entergy used these state population projections consistent with the methodology described in the Enercon Report to extrapolate the 2000 permanent population census data to 2035 permanent population values.<sup>1646</sup>

According to its witnesses, Entergy then adjusted the county-level population projections upward to account for the likely presence of a transient population.<sup>1647</sup> To obtain the transient population estimates for each county, Entergy used state and local estimates of the transient population to estimate the ratio of the permanent-to-transient population in 2004.<sup>1648</sup> The year 2035 transient population was assumed to be the 2004 transient-to-permanent population ratio multiplied by the extrapolated 2035 permanent population.<sup>1649</sup> The projected total population within the 50-mile radius thus was estimated for the year 2035, the end of the proposed license renewal period, by combining the 2035 extrapolated permanent population with the 2035 extrapolated transient population.<sup>1650</sup>

Through this procedure, Entergy estimated a 2035 permanent population of approximately 18.9 million persons residing within 50 miles of IPEC, with a positive adjustment for the transient tourist and business traveler population of approximately 349,000 bringing the total population to approximately 19.2 million.<sup>1651</sup> According to its witnesses, Entergy then used this total population in the MACCS2 code to complete its SAMA analysis.<sup>1652</sup>

The FSEIS indicates that the NRC Staff reviewed the methodologies and assumptions Entergy used in projecting the 2035 permanent and transient population<sup>1653</sup> and concluded that Entergy's "methods and assumptions for estimating population [were] reasonable and acceptable for the purpose of the SAMA evaluation."<sup>1654</sup> Additionally, Sandia<sup>1655</sup> determined that Entergy's projected population growth was reasonable.<sup>1656</sup> Accordingly, the NRC and Sandia stated that

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<sup>1645</sup> *Id.* at 33.

<sup>1646</sup> *Id.* (citing Enercon Report at 2-1 (Ex. NYSR00211)).

<sup>1647</sup> *Id.* The transient population includes business travelers and tourists. *Id.*

<sup>1648</sup> *Id.* at 32.

<sup>1649</sup> *Id.* at 33.

<sup>1650</sup> Enercon Report at 2-5 (Ex. NYSR00211).

<sup>1651</sup> *Id.*; FSEIS at G-25 (Ex. NYS00133I).

<sup>1652</sup> Entergy NYS-16B Testimony at 35 (Ex. ENT000003).

<sup>1653</sup> See, e.g., FSEIS at G-24 to -25 (Ex. NYS00133I).

<sup>1654</sup> *Id.* at G-20.

<sup>1655</sup> Sandia was a technical assistance contractor to the NRC and assisted in responding to NYS-16B. *Id.* at G-22.

<sup>1656</sup> *Id.* at G-25. Sandia performed its own estimate of the population surrounding IPEC during the license renewal period. To perform its estimate, Sandia utilized two different approaches  
(Continued)

“Entergy’s population data and projected population growth analysis provide reasonable (and slightly conservative) population values for its SAMA analysis.”<sup>1657</sup>

### ***3. Alleged Deficiencies in Entergy’s Population Estimate***

Dr. Sheppard, New York’s witness, testified that Entergy’s population estimates are deficient in two respects.<sup>1658</sup> First, Dr. Sheppard asserted that by working from base census data Entergy’s SAMA analysis fails to take into consideration the undercount of minority populations that has been well documented and accepted by the Census Bureau.<sup>1659</sup> Second, Dr. Sheppard asserted that by focusing only on the resident and transient populations, the report is neglecting the substantial number of workers who commute into the region from areas farther than 50 miles from IPEC.<sup>1660</sup> Dr. Sheppard stated that if the appropriate adjustments are made for these factors, the estimated year 2035 population in the region increases by approximately 1.2 million people.<sup>1661</sup> He testified that these two deficiencies render Entergy’s 2007 SAMA analysis and its 2009 SAMA reanalysis defective.<sup>1662</sup>

Regarding the alleged undercount, Dr. Sheppard asserted that since the 1990s, “there has been a clear understanding that the census of population conducted by the U.S. Census Bureau is subject to systematic undercount.”<sup>1663</sup> According to Dr. Sheppard, census undercount is “generally accepted by demographers and by economists and other social scientists . . .”<sup>1664</sup> He stated that census undercount mostly applies to minority populations and that making adjustments for the undercounted population is important to ensure the most accurate possible

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to estimate the population. After comparing its own independent analyses of population, Sandia concluded that Entergy’s projection was reasonable. NRC Staff NYS-12C/16B Testimony at 94-97 (Ex. NRC000041).

<sup>1657</sup> FSEIS at G-25 (Ex. NYS00133I); *see also* NRC Staff NYS-12C/16B Testimony at 94-97 (Ex. NRC000041).

<sup>1658</sup> Entergy relied on Census 2000 data as the foundation or “starting point” for its 2035 population estimate. Tr. at 2408 (Mr. Teagarden for Entergy). Dr. Sheppard does not challenge the use of this data as the appropriate starting point. New York NYS-16B Rebuttal Testimony at 17 (Ex. NYS000404); Tr. at 2407 (Dr. Sheppard for New York). Dr. Sheppard instead argued that the Census 2000 data gives an artificially low count of the population within the 50-mile region surrounding IPEC. New York NYS-16B Testimony at 11-12 (Ex. NYS000207).

<sup>1659</sup> Sheppard Report at 1 (Ex. NYS000209).

<sup>1660</sup> *Id.*

<sup>1661</sup> *Id.* This alleged 1.2 million person increase places the projected 2035 population at 20,456,285 people, which is a 6.38% increase relative to the Entergy estimate. *Id.*

<sup>1662</sup> *Id.*

<sup>1663</sup> *Id.* at 4.

<sup>1664</sup> Tr. at 2407 (Dr. Sheppard for New York).

measure of the population that could be at risk in the event of a severe accident at IPEC.<sup>1665</sup>

Much of Dr. Sheppard's position is based on data from the Census Bureau's March 2001 Accuracy and Coverage Evaluation (A.C.E.) report and a subsequent U.S. Census Board Report that analyzed the A.C.E report.<sup>1666</sup> According to Dr. Sheppard, the U.S. Census Board Report provided estimated undercount rates for minority populations in the states surrounding IPEC that range from 0.52% to 4.49%.<sup>1667</sup> Based on these figures, and assuming no undercount of the white population around IPEC, Dr. Sheppard suggested applying a 1.11% undercount rate to the 2000 census figures for nonwhite population.<sup>1668</sup> This approach would add 231,632 people to the relevant population projection.<sup>1669</sup>

Regarding the alleged failure to account for commuters, Dr. Sheppard testified that Entergy's SAMA analysis fails to account for the number of people that would be present within 50 miles of IPEC during a substantial part of the day because they commute from areas outside the 50-mile region to workplaces that are within the 50-mile region.<sup>1670</sup> Dr. Sheppard asserted that because such workers are part of the population potentially at risk from a severe accident, it is important to include them in the estimate of population in the area.<sup>1671</sup>

To estimate the number of commuters, Dr. Sheppard used data on county-to-county commuter flows from the year 2000.<sup>1672</sup> He testified that these data provide the estimated number of commuters coming into a county each day from any other individual county in the United States.<sup>1673</sup> According to Dr. Sheppard, this procedure estimates the 2000 commuter populations into that portion of each county that is within 50 miles of IPEC.<sup>1674</sup> To determine 2035 commuter population, Dr. Sheppard took the county population growth rates from 2000 to 2035 and applied those growth rates to total commuter population for each county.<sup>1675</sup> Dr. Sheppard stated that this approach would lead to an estimated

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<sup>1665</sup> *Id.*

<sup>1666</sup> See Sheppard Report (Ex. NYS000209). Dr. Sheppard relied on U.S. Census Monitoring Board Presidential Members, "Final Report to Congress" (Sept. 1, 2001) (Ex. NYS000213). This report, in turn, relies in part on data from the Census Bureau's March 2001 A.C.E. report, which discusses the results of the 2000 census.

<sup>1667</sup> Sheppard Report at 5 (Ex. NYS000209).

<sup>1668</sup> *Id.* According to Dr. Sheppard, the 1.11% undercount used by him is slightly less than the 1.18% undercount estimated by the U.S. Census Monitoring Board Report for the entire U.S. *Id.*

<sup>1669</sup> *Id.* at 8.

<sup>1670</sup> *Id.* at 5.

<sup>1671</sup> *Id.*

<sup>1672</sup> *Id.* at 6.

<sup>1673</sup> *Id.*

<sup>1674</sup> New York NYS-16B Testimony at 15 (Ex. NYS000207).

<sup>1675</sup> *Id.*

995,778 commuters entering the 50-mile area surrounding IPEC on an average day in 2035.<sup>1676</sup>

In sum, Dr. Sheppard, on behalf of New York, maintained that by accounting for census undercount and commuters, it has provided an improved estimate of the total population of 20,456,285 people in the 50-mile area surrounding IPEC, which is 6.38% higher than the total population figure used by Entergy. According to Dr. Sheppard, Entergy underestimated the costs of a severe accident at IPEC because it did not account for census undercount and commuters.

#### **D. NYS-16B Findings**

For the reasons set forth below, we find that Entergy's estimate and the NRC's approval of the projected population estimate are reasonable and satisfy the requirements under NEPA and 10 C.F.R. § 51.53(c)(3)(ii)(L). First, Entergy reasonably relied on unadjusted Census 2000 data for the basis of its projected population. Second, Entergy's exclusion of commuters from the projected population was reasonable.

##### ***1. Census Undercount***

In regard to the alleged undercount of the minority population within the 50-mile region of IPEC, even if true the level of the undercount is difficult to estimate, especially given the evidence supporting a potential overcount in the data used by Entergy. As stated above, Entergy relied on Census 2000 data as the foundation or "starting point" for its 2035 population estimate.<sup>1677</sup> Dr. Sheppard did not challenge the use of these data as the appropriate starting point.<sup>1678</sup> Instead, he argued that the Census 2000 data give an artificially low count of the population within the 50-mile region surrounding IPEC,<sup>1679</sup> based on data from the March 2001 A.C.E.<sup>1680</sup> We do not agree.

The record shows that there was some potential overcounting of the population within the 50-mile region surrounding IPEC. The March 2001 A.C.E. report, which was relied upon by Dr. Sheppard, indicates that there was a net undercount of approximately 1.18% for Census 2000.<sup>1681</sup> Entergy, however, provided evidence

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<sup>1676</sup> *Id.* at 16.

<sup>1677</sup> Tr. at 2408 (Mr. Teagarden for Entergy).

<sup>1678</sup> New York NYS-16B Rebuttal Testimony at 17 (Ex. NYS000404); Tr. at 2407 (Dr. Sheppard for New York).

<sup>1679</sup> New York NYS-16B Testimony at 11-12 (Ex. NYS000207).

<sup>1680</sup> *Id.* at 10-11.

<sup>1681</sup> U.S. Census Bureau, Technical Assessment of A.C.E. Rev. II at iii (Mar. 12, 2003) (Ex. ENT000016).

indicating that the U.S. Census Bureau conducted further research to produce a more complete revision of the estimates that might be used to adjust the census base used in the intercensal estimates.<sup>1682</sup> This work, A.C.E. Rev. II, identifies errors in the March 2001 A.C.E. report, concluding that “[t]he March 2001 A.C.E. estimates of Census 2000 coverage were determined to be unacceptable because A.C.E. failed to measure a significant number of erroneous census enumerations.”<sup>1683</sup> As reported by the Census Bureau, the results of the more recent Census Bureau publication “are substantially different from those of March 2001, changing the estimated net coverage of the total household population from a net *undercount* of 1.18% to a net *overcount* of 0.49%.”<sup>1684</sup> Despite its more recent publication, the Census Bureau nonetheless did not change the base for its intercensal population estimates due to certain limitations in the March 2001 A.C.E. methodology.<sup>1685</sup>

While Dr. Sheppard did not dispute the A.C.E. Rev. II findings that the undercount was overstated, he continued to maintain that the nonwhite population within the 50-mile region still was undercounted by 3%.<sup>1686</sup> It was his opinion that, although the A.C.E. Revision II’s post-enumeration sampling indicated a slight overcount of the white population, the demographic analysis showed a net undercount nationwide.<sup>1687</sup> He also testified that approximately 40% of the population surrounding IPEC is black or Hispanic, which is nearly double the national average.<sup>1688</sup> Asserting that large minority and urban populations are disproportionately affected by census undercount, Dr. Sheppard concluded that the 50-mile radius surrounding IPEC is particularly prone to census undercount.<sup>1689</sup> Therefore, Dr. Sheppard asserted that Entergy should have adjusted its population estimate to account for the census undercount of minorities living within 50 miles of IPEC.<sup>1690</sup>

In contrast, Entergy’s witness, Mr. Riggs, testified that he performed his own calculation to determine the projected 2035 population using the numbers cited

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<sup>1682</sup> Entergy NYS-16B Testimony at 41 (Ex. ENT000003).

<sup>1683</sup> *Id.* (quoting U.S. Census Bureau, Technical Assessment of A.C.E. Rev. II at 1 (Mar. 12, 2003) (Ex. ENT000016)).

<sup>1684</sup> U.S. Census Bureau, Decision on Intercensal Census 2000 Estimates at 2 (Mar. 12, 2003) (Ex. ENT000018) (emphasis in original).

<sup>1685</sup> U.S. Census Bureau, Technical Assessment of A.C.E. Rev. II at 1 (Mar. 12, 2003) (Ex. ENT000016). It should be noted that despite recommending not changing the base for its intercensal population estimates, this report states that these estimates are “dramatically superior to the March 2001 A.C.E. estimates . . .” *Id.*

<sup>1686</sup> New York NYS-16B Testimony at 23 (Ex. NYS000207).

<sup>1687</sup> *Id.* at 25-26.

<sup>1688</sup> *Id.* at 26.

<sup>1689</sup> *Id.*

<sup>1690</sup> *Id.* at 13.

by Dr. Sheppard.<sup>1691</sup> Mr. Riggs testified that using the values cited in the A.C.E. Rev. II study, he also calculated a net overcount of minorities within the IPEC SAMA analysis region.<sup>1692</sup>

Nevertheless, we need not determine with certainty whether there was a slight population undercount or overcount because, based on our review of the record, the Board finds that it was reasonable for Entergy to rely on the unadjusted Census 2000 data. As stated above, Entergy used, as a starting point, the Census 2000 data.<sup>1693</sup> And New York agreed that this was appropriate.<sup>1694</sup> Since the publication of the Census 2000 data, the Census Bureau has developed several intercensal population estimates for the area under consideration, first indicating that there was a net undercount of approximately 1.18% for Census 2000,<sup>1695</sup> but then identifying errors in the March 2001 A.C.E. Report,<sup>1696</sup> and indicating that the estimated population actually could be changed from a net undercount to a net overcount.<sup>1697</sup>

In light of this evidence, the Board finds that even if there was an undercount of minorities in the 50-mile region surrounding IPEC, it was not unreasonable for Entergy to use, and the NRC Staff to approve, the unaltered use of Census 2000 data for a SAMA analysis performed under NEPA as a basis for the estimation of the 2035 population in the 50-mile region surrounding the IPEC region. The “proper question is not whether there are plausible alternative choices for use in the analysis, but whether the analysis that was done is reasonable under NEPA,”<sup>1698</sup> and we find that it was.

Lastly, it is worth noting that there appears to be no regulatory requirement or precedent suggesting the need to adjust officially reported U.S. Census data for known or possible undercounts for use in a NEPA analysis. As Entergy’s witnesses noted, NRC and EPA guidance documents recommend the use of officially reported census data without specifying the need to adjust the data for undercount or, for that matter, overcount.<sup>1699</sup> With this in mind, and for the reasons set forth above, the Board finds that Entergy and the NRC Staff were not required

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<sup>1691</sup> Tr. at 2420 (Mr. Riggs for Entergy).

<sup>1692</sup> *Id.*

<sup>1693</sup> Tr. at 2408 (Mr. Teagarden for Entergy).

<sup>1694</sup> New York NYS-16B Rebuttal Testimony at 17 (Ex. NYS000404); Tr. at 2407 (Dr. Sheppard for New York).

<sup>1695</sup> U.S. Census Bureau, Technical Assessment of A.C.E. Rev. II at iii (Mar. 12, 2003) (Ex. ENT000016).

<sup>1696</sup> U.S. Census Bureau, Decision of Intercensal Census 2000 Estimates at 2 (Mar. 12, 2003) (Ex. ENT000018).

<sup>1697</sup> *Id.*

<sup>1698</sup> Seabrook, CLI-12-5, 75 NRC at 323.

<sup>1699</sup> Entergy NYS-16B Testimony at 42-43 (Ex. ENT000003).

to adjust the 2035 population estimate to reflect any minor census undercount that may or may not exist.

## **2. *Commuters***

New York argues that Entergy's 2035 population estimate is also flawed for not including in the transient population those commuters who enter and remain in the SAMA analysis region on a daily basis, and are "just as at risk" because they "enter and remain within the 50 mile radius of IPEC on a daily basis . . ."<sup>1700</sup> New York offered no additional explanation as to why commuters are "just as at risk" as permanent residents, and we are left with only conclusory statements proffered by New York's witness in support of this proposition. In response to New York's statements of position and the testimony of Dr. Sheppard, Entergy's witnesses testified that:

[u]nlike permanent residents, commuters are not always within the 50-mile region and thus may not be within the region at the time of a severe accident.

Commuters evacuated or relocated from within the 50-mile region would be able to return to their home immediately and thus would not incur temporary housing, food or moving costs.

Commuters do not have personal property within the 50-mile region that would be subject to decontamination or interdiction.<sup>1701</sup>

The Board finds the testimony of Entergy's witnesses persuasive. Commuters may not be within the region during a severe accident; if they are within the region during a severe accident they would be able to return to their homes outside the region subject to decontamination or interdiction, and they do not have personal property within this region. Therefore, the Board finds that commuters, as compared to residents, are not at risk in a way that must be accounted for in a SAMA analysis.

Additionally, the Board concludes that the acceptance in the FSEIS of Entergy's decision not to include commuters was reasonable based on the level of conservatism underlying the MACCS2 code's treatment of transients. MACCS2 equates transients to permanent residents.<sup>1702</sup> For example, with respect to the population dose risk, the MACCS2 code assumes that each person included in the population data (including transients) resides in the 50-mile region 100% of the

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<sup>1700</sup> New York NYS-16B Testimony at 14 (Ex. NYS000207).

<sup>1701</sup> Entergy NYS-16B Testimony at 44 (Ex. ENT000003).

<sup>1702</sup> *Id.* at 29.

time.<sup>1703</sup> This is a conservative assumption for transients because “shoppers and recreational visitors may be in the 50-mile region for only a few hours, or a few days each year.”<sup>1704</sup> Therefore, as Entergy’s witnesses testified, the population dose calculated by MACCS2 overestimates the dose for this component of the population as a result of the extended exposure period conservatively assumed for transients.<sup>1705</sup>

The same appears true with respect to offsite economic cost estimates; considering all persons in the 50-mile region as permanent residents leads to conservative estimates since the MACCS2 calculation is determined through a set of per capita input parameters that would typically not be incurred by transients.<sup>1706</sup> As examples of these conservative estimates, Entergy’s witnesses discussed six specific per capita inputs including daily costs for an evacuated person (EVACST, RELCST), one-time relocation cost due to exceeding dose criteria (POPCST), decontamination costs for nonfarm property (CDNFRM), and loss of nonfarm wealth (VALWNF and VNFRM).<sup>1707</sup>

The Board agrees that applying these offsite economic cost estimates to transients is unrealistic. Transients would not incur costs related to short-term or long-term housing, relocation, decontaminating nonfarm property, or value lost due to condemned land. As a result, the MACCS2 code overestimates the offsite economic cost estimates for transients, which adds a level of conservatism. Therefore, the Board finds that including transients in the population data results in a higher, more conservative estimate of population dose and offsite economic cost estimates into the IPEC SAMA analysis.

Based on the testimony presented by the parties, the Board finds that Entergy appropriately accounted for transient populations for the 50-mile region within the SAMA analysis. Commuters originating from outside the 50-mile region are not “just as at risk” as permanent residents so as to require that they be accounted for under the MACCS2 model. Additionally, we find that the level of conservatism afforded by treating transients as permanent residents supports Entergy’s and the NRC Staff’s decision not to include commuters when accounting for transient populations. Therefore, the Board finds that Entergy’s decision to exclude commuters from its transient population estimate was reasonable.

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<sup>1703</sup> *Id.*

<sup>1704</sup> Entergy NYS-16B Testimony at 29-30 (Ex. ENT000003); Tr. at 2508 (Mr. Jones for the NRC Staff).

<sup>1705</sup> Entergy NYS-16B Testimony at 29-30 (Ex. ENT000003).

<sup>1706</sup> *Id.* at 30-31.

<sup>1707</sup> *Id.*

## **E. Conclusions of Law**

In summary, a preponderance of the evidence presented by the parties shows that Entergy's estimate and the NRC's approval of the projected population is reasonable and satisfies the requirements under NEPA and 10 C.F.R. § 51.53(c)(3)(ii)(L). It was reasonable for Entergy to rely on unadjusted Census 2000 data and to exclude commuters from the projected population. Accordingly, NYS-16B is resolved in favor of the NRC Staff and the issues raised by this contention do not prevent the Commission from issuing the requested renewal licenses.

## **IX. NEPA CONTENTION NYS-17B (REAL ESTATE VALUES)**

### **A. Statement of Contention NYS-17B**

NYS-17B, a NEPA contention that challenges the failure to consider the impact of license renewal on real estate values, as litigated on October 22, 2012, reads as follows:

The FSEIS fails to address the impact of the continued operation of IP2 and IP3 for another 20 years on off-site land use, including real estate values in the surrounding area in violation of 10 C.F.R. §§ 51.71(a), 51.71(d), 51.95(c)(1), and 51.95(c)(4).<sup>1708</sup>

### **B. NYS-17B Background**

#### ***I. NYS-17B Procedural History***

New York filed NYS-17 with its initial petition to intervene, and we admitted NYS-17 as a contention of omission.<sup>1709</sup> In so doing we stated that “[i]n conducting its analysis of the impact of the license renewal on land use, Entergy should have considered the impact on real estate values that would be caused by license renewal or non-renewal.”<sup>1710</sup>

On February 27, 2009, New York submitted an amended version of the contention, NYS-17A, based on the NRC Staff's DSEIS. We admitted NYS-17A and consolidated it with NYS-17, ruling that “this amended contention updates the original to reflect that New York contends that the NRC Staff erred in a similar manner to Entergy and that the original contention was now relevant to the Draft

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<sup>1708</sup> State of New York Contention 17B (Jan. 24, 2011) at 2.

<sup>1709</sup> LBP-08-13, 68 NRC at 116.

<sup>1710</sup> *Id.*

SEIS, as well as to the ER.”<sup>1711</sup> Subsequently, on January 24, 2011, New York submitted a second amended version of the contention, NYS-17B, that directed its argument to the FSEIS.<sup>1712</sup> We admitted the contention and consolidated it with its earlier versions.<sup>1713</sup>

## **2. Legal Standards and Issues Related to NYS-17B**

As noted above at page 279, the NRC has the burden to defend its authorship of the EIS, and, by regulation, divided the environmental impacts of license renewal of nuclear power plants into two categories. Category 1 impacts are those that the Commission has determined are common across plants — they have been evaluated generically in the GEIS for license renewal. These impacts are outside the scope of individual license renewal proceedings.<sup>1714</sup> Category 2 impacts are those that require plant-specific analysis in a supplemental EIS. Table B-1 of 10 C.F.R. Part 51, Subpart A, Appendix B defines whether a given impact category falls under Category 1 or Category 2.

Offsite land use is a Category 2 impact.<sup>1715</sup> The GEIS explains that “[b]ecause land use changes may be perceived by some community members as adverse and by others as beneficial, the staff is unable to assess generically the potential significance of site-specific off-site land use impacts.”<sup>1716</sup> At a minimum, two examples of offsite land-use impacts from license renewal were presented in the GEIS: “During the renewal term, new land-use impacts could result from plant-related population growth or from the use by local governments of the plants’ tax payments to provide public services that encourage development.”<sup>1717</sup> In admitting NYS-17, we held that offsite land-use impacts are not limited to the examples of population or tax changes, but encompass all impacts resulting from changes in property values.<sup>1718</sup>

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<sup>1711</sup> Licensing Board Order (Ruling on New York State’s New and Amended Contentions) (June 16, 2009) at 7-8 (unpublished).

<sup>1712</sup> State of New York Motion for Leave to File Timely Amended Bases to Contention 17A (Now to Be Designated Contention 17B) (Jan. 24, 2011).

<sup>1713</sup> See Licensing Board Memorandum and Order (Ruling on Pending Motions for Leave to File New and Amended Contentions) (Jul. 6, 2011) at 16 (unpublished). We also explained that the scope of the contention does not include impacts of long-term storage of nuclear fuel.

<sup>1714</sup> See 10 C.F.R. § 51.53(c)(3)(i).

<sup>1715</sup> 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1.

<sup>1716</sup> GEIS at 4-109 (Ex. NYS00131B).

<sup>1717</sup> *Id.* at 4-108.

<sup>1718</sup> LBP-08-13, 68 NRC at 116.

### **3. Evidentiary Record Related to NYS-17B**

#### *a. Identification of Witnesses Who Provided Testimony Relevant to NYS-17B*

Entergy presented three witnesses in support of its position on NYS-17B — Donald P. Cleary,<sup>1719</sup> C. William Reamer,<sup>1720</sup> and Dr. George S. Tolley.<sup>1721</sup> On March 28, 2012, Entergy submitted the written testimony of these witnesses,<sup>1722</sup> which was admitted into evidence on October 15, 2012.<sup>1723</sup>

The NRC presented three witnesses in support of its NEPA review — Jeffrey J. Rikhoff,<sup>1724</sup> Andrew L. Stuyvenberg,<sup>1725</sup> and John P. Boska.<sup>1726</sup> On October 9, 2012, the NRC Staff submitted the joint testimony of these witnesses,<sup>1727</sup> which was admitted into evidence on October 15, 2012.<sup>1728</sup>

New York presented a single witness in support of NYS-17B — Dr. Stephen C. Sheppard.<sup>1729</sup> On January 30, 2012, New York submitted Dr. Sheppard's written direct testimony.<sup>1730</sup> On June 29, 2012, New York submitted the rebuttal testimony of Dr. Sheppard.<sup>1731</sup> Both of these submissions were admitted into evidence at the hearing.<sup>1732</sup>

#### *b. Identification of Admitted Exhibits Relevant to NYS-17B*

Relevant to NYS-17B, Entergy submitted fifty-nine exhibits, the NRC Staff

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<sup>1719</sup> Curriculum Vitae of Donald P. Cleary (Ex. ENT000133).

<sup>1720</sup> Curriculum Vitae of C. William Reamer (Ex. ENT000140).

<sup>1721</sup> Curriculum Vitae of George S. Tolley, Ph.D. (Ex. ENT000143).

<sup>1722</sup> Testimony of Entergy Witnesses Donald P. Cleary, C. William Reamer, and George S. Tolley Regarding Contention NYS-17B (Property Values) (Mar. 28, 2012) (Ex. ENTR00132) [hereinafter Entergy NYS-17B Testimony].

<sup>1723</sup> Tr. at 1269 (Judge McDade).

<sup>1724</sup> Statement of Qualifications of Jeffrey J. Rikhoff (Ex. NRC000082).

<sup>1725</sup> Statement of Qualifications of Andrew L. Stuyvenberg (Ex. NRC000083).

<sup>1726</sup> Statement of Qualifications of John P. Boska (Ex. NRC000084).

<sup>1727</sup> NRC Staff's Testimony of Jeffrey J. Rikhoff, Andrew L. Stuyvenberg, and John P. Boska Concerning Contentions NYS-17, 17A and 17B (Land Use) (Ex. NRCR00081) [hereinafter NRC Staff NYS-17B Testimony].

<sup>1728</sup> Tr. at 1269 (Judge McDade).

<sup>1729</sup> Curriculum Vitae of Stephen C. Sheppard (Ex. NYS000208).

<sup>1730</sup> Pre-Filed Direct Testimony of Stephen C. Sheppard, Ph.D. Regarding Contention NYS-17B (Jan. 30, 2012) (Ex. NYSR00224) [hereinafter New York NYS-17B Testimony].

<sup>1731</sup> Pre-Filed Written Rebuttal Testimony of Stephen C. Sheppard Regarding Contention NYS-17B (June 28, 2012) (Ex. NYS000434) [hereinafter New York NYS-17B Rebuttal Testimony].

<sup>1732</sup> Tr. at 1269 (Judge McDade).

submitted nine exhibits, and New York submitted twenty-nine exhibits.<sup>1733</sup> The exhibits were admitted into the record.<sup>1734</sup>

*c. Relevant Guidance Document*

1. NUREG-1555, Supplement 1, Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Environmental Standard Review Plan for Operating License Renewal § 4.4.3 (Ex. ENT00019B). This guidance document “directs the staff’s analysis and assessment of potential impacts on offsite land use during the renewal term.”<sup>1735</sup>

**C. Evidence Related to Real Estate Values**

The NRC Staff witnesses testified that their drafting of the relevant portions of the FSEIS addressing the effects of license renewal on land use was consistent with the agency’s Standard Review Plan, NUREG-1555, Supplement 1,<sup>1736</sup> which specifies procedures for the Staff to follow in conducting its review of the impacts of license renewal on offsite land use.<sup>1737</sup> In identifying and evaluating impacts, the SRP’s procedures state that the Staff should begin with the potential impacts discussed in the GEIS, and should then use site-specific information provided in the Applicant’s ER and in the records of public meetings and correspondence related to the application.<sup>1738</sup> More specifically, the SRP states that the Staff should:

Analyze the offsite land-use impacts associated with operations during the renewal term, as follows:

- Determine the new land-use impacts that could result from plant-related population growth or from the use by local governments of the plants’ tax payments to provide public services that encourage development.
- Predict the geographic distribution of new development, if any.

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<sup>1733</sup> See Appendix B of this Partial Initial Decision.

<sup>1734</sup> Tr. at 1269 (Judge McDade).

<sup>1735</sup> RES, Standard Review Plans for Environmental Reviews for Nuclear Power Plants, NUREG-1555, Supp. 1: Operating License Renewal § 4.4.3. (Oct. 1999) (Ex. ENT00019B) [hereinafter NUREG-1555].

<sup>1736</sup> See NRC Staff NYS-17B Testimony at 9-10 (Ex. NRCR00081).

<sup>1737</sup> See NUREG-1555 § 4.4.3 (Ex. ENT00019B).

<sup>1738</sup> *Id.* at 4.4.3-4.

- Estimate the effects of in-migrants and induced economic activity on offsite land use.<sup>1739</sup>

The FSEIS for IP2 and IP3 addresses the impacts of relicensing IP2 and IP3 on offsite land use under the rubric of socioeconomic impacts in sections 4.4.3 and 8.2. In section 4.4.3 of the FSEIS, the Staff concluded that “the socioeconomic impacts of continued plant operation [including impacts on offsite land use] would be SMALL.”<sup>1740</sup> The bases for this conclusion were that (1) the number of permanent employees at Indian Point during the renewal term will not change and therefore no population-related impacts will occur, and (2) the payments and taxes paid by Entergy will remain relatively unchanged, and therefore no taxation-related impacts will occur.<sup>1741</sup> The Staff’s discussion of the offsite land-use impacts of continued operation did not address impacts on property values.<sup>1742</sup>

Mr. Rikhoff of the NRC Staff testified that in drafting the FSEIS the Staff operated on the belief that it was not required by NEPA, NRC regulations, or Staff guidance to address impacts on land values, only on land use.<sup>1743</sup> Nevertheless, he pointed to the GEIS,<sup>1744</sup> which addresses “housing marketability” with the observation that, in general, the license renewal term of a plant should have similar impacts on housing marketability and values as the original license term.<sup>1745</sup>

The GEIS includes a 1996 case study forecasting the specific impacts of license renewal at Indian Point. With respect to impacts on property values, the GEIS concludes that “[h]ousing impacts related to housing value and marketability that occur during the license renewal term are the same as those currently being experienced.”<sup>1746</sup> Mr. Rikhoff testified for the Staff that it was his view that “[b]ecause any impact to property values would have occurred prior to or during plant construction, that impact is already reflected in existing property values.”<sup>1747</sup>

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<sup>1739</sup> *Id.*

<sup>1740</sup> See FSEIS at 8-24 (Ex. NYS00133C).

<sup>1741</sup> See *id.* at 4-45 to -47 (Ex. NYS00133B). See also NRC Staff NYS-17B Testimony at 12 (Ex. NRCR00081) (“Since there would be no increase in employment or new construction or other improvements during the license renewal term, there would be no population or tax revenue-related impacts on offsite land use as a result of license renewal.”).

<sup>1742</sup> See NRC Staff NYS-17B Testimony at 14 (Ex. NRCR00081).

<sup>1743</sup> See *id.* at 7-8. In response to a comment on the DSEIS, the Staff wrote in the FSEIS that “[t]he impact of nuclear plant operations on real estate values was not identified [in the GEIS] as an issue to be addressed by license renewal.” FSEIS at A-122 (Ex. NYS00133D).

<sup>1744</sup> *Id.*

<sup>1745</sup> GEIS at 4-103 (Ex. NYS00131B).

<sup>1746</sup> *Id.* at C-85 (Ex. NYS00131G).

<sup>1747</sup> NRC Staff NYS-17B Testimony at 15 (Ex. NRCR00081).

The Staff's analysis of the impacts of the "no-action alternative" of denying license renewal and the subsequent decommissioning of Indian Point was published in section 8.2 of the FSEIS. With regard to impacts from physical changes in offsite land use, the FSEIS identified the possible removal of transmission lines and "conclude[d] that the impacts on land use from plant shutdown would be SMALL."<sup>1748</sup>

The FSEIS analysis further notes that should Indian Point cease operations, payments-in-lieu-of-taxes (PILOT), property taxes, and other tax payments by Entergy would diminish.<sup>1749</sup> According to the FSEIS, "Entergy paid a combined \$21.2 million in PILOT payments, property taxes, and other taxes to Westchester County, the Town of Cortlandt, the Village of Buchanan, the Verplanck Fire District, and the Hendrick Hudson Central School District in 2005 . . ."<sup>1750</sup> In particular, payments to the Village of Buchanan "contributed about 39 percent of the Village of Buchanan's total revenue of \$5.08 million . . ."<sup>1751</sup>

The FSEIS addressed the effect of shutting down Indian Point on local property values and property taxes:

The shutdown of IP2 and IP3 may result in increased property values of the homes in the communities surrounding the site (Leviton and Associates, Inc. 2005). This would result in some increases in tax revenues. However, to fully offset the revenues lost from the shutdown of IP2 and IP3, taxing jurisdictions most likely would have to compensate with higher property taxes (Leviton and Associates, Inc. 2005). The combined increase in property values and increased taxes could have a noticeable effect on some area homeowners and business, though Levitan and Associates did not indicate the magnitude of this effect and whether the net effect would be positive or negative.<sup>1752</sup>

The FSEIS concluded that the cost in revenue losses to local communities from the cessation of Entergy's tax and PILOT payments would outweigh any benefits due to increased property values and property tax revenues:

Revenue losses from Indian Point operation would affect the communities closest to and most reliant on the plant's tax revenue and PILOT. If property values

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<sup>1748</sup> FSEIS at 8-22 (Ex. NYS00133C).

<sup>1749</sup> *Id.* at 8-24.

<sup>1750</sup> *Id.*

<sup>1751</sup> *Id.*

<sup>1752</sup> *Id.* at 8-25. The Levitan and Associates, Inc. study to which the FSEIS refers was prepared by a consultant on behalf of Westchester County for the purpose of evaluating impacts and options concerning the retirement of Indian Point. *See* Levitan & Associates, Inc., Indian Point Retirement Options, Replacement Generation, Decommissioning/Spent Fuel Issues, and Local Economic/Rate Impacts (June 9, 2005) (Ex. NYS000056). It was not commissioned by the NRC Staff.

and property tax revenues increase, some of these effects would be smaller. The NRC staff concludes that the socioeconomic impacts of plant shutdown would likely be SMALL to MODERATE (MODERATE effects for the Hendrick Hudson Central School District, Village of Buchanan, Town of Cortlandt, and the Verplanck Fire District). See Appendix J to NUREG-0586, Supplement 1 (NRC 2002), for additional discussion of the potential impacts of plant shutdown.<sup>1753</sup>

Entergy argued that the FSEIS appropriately concludes that the offsite land-use impacts under the no-action alternative are SMALL and the overall socioeconomic impacts under the no-action alternative are SMALL to MODERATE. The details of Entergy's position will not be discussed here as it is not materially different from the NRC Staff's position outlined above.<sup>1754</sup>

#### D. Alleged Deficiencies Relating to Real Estate Values in the FSEIS

Dr. Sheppard for New York testified that the value of property affects how the land will be utilized. He explained that "increased values of residential property will cause owners to make more careful use of land and allocate the land to different types of uses."<sup>1755</sup> Accordingly, he argued that Indian Point's impacts on property values are directly tied to its impacts on land use, and therefore consideration of the latter must include the former.<sup>1756</sup> New York noted that the Staff did not conduct any independent analysis on the effect of license renewal or nonrenewal on property values.<sup>1757</sup> New York further argued that the Staff mischaracterized the Levitan report's conclusion that property values would "likely" rise if Indian Point is retired.<sup>1758</sup> Although the Staff acknowledged that the Levitan report did not indicate whether the overall effect on tax revenues of increased property tax collection and reduced payments from Entergy would be positive or negative, New York argued that the Staff instead assumed without analysis that revenues would decrease.<sup>1759</sup>

Through the course of this proceeding, New York submitted five reports that had been prepared by Dr. Stephen Sheppard.<sup>1760</sup> At the hearing, Dr. Sheppard

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<sup>1753</sup> FSEIS at 8-25 (Ex. NYS00133C).

<sup>1754</sup> See, e.g., Entergy's Statement of Position on Contention NYS-17B (Property Values) (Mar. 28, 2012).

<sup>1755</sup> New York NYS-17B Testimony at 40 (Ex. NYSR00224).

<sup>1756</sup> See *id.* at 8, 11.

<sup>1757</sup> State of New York Initial Statement of Position Contention NYS-17B (Dec. 17, 2011) at 27-28 (Ex. NYS000223).

<sup>1758</sup> *Id.* at 15-16.

<sup>1759</sup> *Id.* at 17.

<sup>1760</sup> See Report of Stephen C. Sheppard, Potential Impacts of Indian Point Relicensing on Property (*Continued*)

stated that his position was best articulated in his final, December 2011 report, which unlike his previous reports was based on a statistical analysis of housing data in the vicinity of Indian Point.<sup>1761</sup> In his last report and testimony, Dr. Sheppard attempted to show through statistical analysis that the start of operations of IP2 and IP3 between 1974 and 1976 had the effect of reducing property values within 5 kilometers of the facility by over \$1 billion, but that the retirement of IPEC would have the opposite impact.<sup>1762</sup>

He hypothesized those property owners who held property over the period between 1974 and 1976 (the period when IP2 and IP3 commenced commercial operations) experienced a lower rate of return on their property than property owners who held their property entirely over a period prior to 1974 or after 1976.<sup>1763</sup> In other words, in his opinion, those who bought property before 1974 and sold it after 1976 would have experienced the “shock” associated with the activation of IP2 and IP3, reducing the rate of return on their property. By contrast, for property both purchased and sold after 1976, Dr. Sheppard supposed that the effect of IP2 and IP3 would be reflected in both the purchase price and the sale price, and for property purchased and sold before 1974, IP2 and IP3 would have no effect.<sup>1764</sup>

In his testimony, Dr. Sheppard and Entergy’s expert Dr. Tolley referred to Dr. Sheppard’s approach as “repeat sales” analysis.<sup>1765</sup> Although Dr. Sheppard’s report does not cite to other studies that have used this analytical method, he testified that “[t]his approach is similar to so-called ‘event studies’ that are widely used to determine the impact of events that affect the value of stocks and other financial instruments.”<sup>1766</sup>

To test his hypothesis, Dr. Sheppard stated that he obtained housing sales data for approximately 1500 properties within 5 kilometers of Indian Point.<sup>1767</sup> He then performed a regression analysis to compare the rate of return for properties in his

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Values (Nov. 29, 2007) (Ex. NYS000226) [hereinafter 2007 Sheppard Report]; Report of Stephen C. Sheppard, Potential Impacts of Indian Point Relicensing with Delayed Site Remediation (Feb. 26, 2009) (Ex. NYS000227); Report of Stephen C. Sheppard, Determinants of Property Values (Mar. 15, 2010) (Ex. NYS000228); Report of Stephen C. Sheppard, Potential Economic Impacts Related to Property Value Diminution in Communities Surrounding the IPEC (Jan. 24, 2011) (Ex. NYS000230); Report of Stephen C. Sheppard, Impacts of the Indian Point Energy Center on Property Values (Revised Jan. 30, 2012) (Ex. NYSR00231) [hereinafter December 2011 Sheppard Report].

<sup>1761</sup> See Tr. at 2571-72 (Dr. Sheppard for New York) (“The December 2011 report is the only report that I have filed that actually presents analysis of data collected from [the] area around Indian Point.”).

<sup>1762</sup> See generally December 2011 Sheppard Report (Ex. NYSR00231).

<sup>1763</sup> See *id.* at 14-32.

<sup>1764</sup> *Id.* at 30.

<sup>1765</sup> See Tr. at 2578 (Dr. Tolley for Entergy), 2602 (Dr. Sheppard for New York).

<sup>1766</sup> New York NYS-17B Testimony at 14 (Ex. NYSR00224).

<sup>1767</sup> *Id.* at 31.

“treatment group” (those purchased before 1974 and sold after 1976) with those in the “control group” (those both purchased and sold before 1974 or after 1976). He concluded that the results supported his hypothesis and that the commencement of operations of IP2 and IP3 created a “disamenity” that lowered the rate of return on property by approximately 3% per year.<sup>1768</sup>

By aggregating this 3% reduction in annual return across all homes within 5 kilometers of Indian Point over a 9-year average ownership period, Dr. Sheppard estimated the total loss to homeowners at approximately \$1 billion.<sup>1769</sup> Dr. Sheppard testified that based on the assumptions in his model, this is a “conservative estimate,” in part because his treatment group does not include the period of operation of Unit 1 and construction of IP2 and IP3.<sup>1770</sup> He surmised that “there may have been some [additional] adverse property value impacts that took place prior to 1974.”<sup>1771</sup>

According to Dr. Sheppard, the \$1 billion in decreased property values that he calculated represents the benefit that would accrue to the community surrounding Indian Point upon the cessation of operations of IP2 and IP3. This is based on his assumption “that when [Indian Point] is gone and the site is restored these changes will be undone.”<sup>1772</sup>

## E. NYS-17B Findings

We find that Dr. Sheppard’s analysis contains numerous flaws that render its conclusions unreliable, and it consequently fails to discredit the NRC Staff’s assessment of the impact of Indian Point on local land use and property values.

### 1. Treatment Period

Several of the flaws in Dr. Sheppard’s analysis derive from the way he defines the treatment period. Dr. Sheppard identifies the commencement of operations of IP2 and IP3 as the “event” that triggered a decrease in property values, which were reflected in a lower rate of return on property purchased before the Indian Point units became operational and sold after facility operations began.<sup>1773</sup> But this

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<sup>1768</sup> *Id.* at 32-33. Dr. Sheppard defined a disamenity as “a localized land use[,] . . . structure or activity on the land that generates . . . an adverse impact that reduces the desirability or use of the land by other nearby land owners or occupants.” Tr. at 2556 (Dr. Sheppard for New York); *see also* New York NYS-17B Testimony at 13 (Ex. NYSR00224).

<sup>1769</sup> New York NYS-17B Testimony at 33-34 (Ex. NYSR00224).

<sup>1770</sup> *Id.* at 37-38.

<sup>1771</sup> *Id.*

<sup>1772</sup> *Id.* at 39.

<sup>1773</sup> *Id.* at 14.

assumption fails to account for the fact that before IP2 and IP3 existed, there was already a functioning nuclear reactor at Indian Point, as Unit 1 began commercial operations in 1962.<sup>1774</sup> Although Dr. Sheppard sought to diminish the impact of Unit 1 as “a much smaller unit that was shut down in 1974,”<sup>1775</sup> we find it difficult to credit the notion that the existing Indian Point power plant was not itself a disamenity in 1974, or that the additional units created a significantly larger disamenity than the preexisting plant. When queried on our concern, Dr. Sheppard testified that the effects of Unit 1 “would have been interesting alternative things to investigate,” but he did not because “they wouldn’t be as directly relevant” to NYS-17B.<sup>1776</sup>

It is also unclear why the commencement of operations of IP2 in 1974 should be the beginning of the “event” that triggered the decrease in property values. One would expect that home purchasers would anticipate the disamenity of additional nuclear reactors well before IP2 and IP3 became operational (due to, for example, the announcement of development plans, the start of construction, etc.), and this would be reflected in sale prices. Along these lines, Dr. Tolley for Entergy testified that “people take account of anticipation effects. If they know that this plant is going to open and they don’t like it, they’re not going to bid as much for the property.”<sup>1777</sup>

Beyond these flaws in the treatment period, Dr. Sheppard also rejects the possibility that other factors exist to explain the discrepancy in the rates of return between his control group and his treatment group. In particular, he fails to control for broad economic trends that affected housing prices during the period of his study, such as the energy crisis and economic downturn in the late 1970s, and the housing bubble that burst in 2007. Dr. Sheppard replied to these concerns by asserting that his experimental design accounted for such trends:

concerns about high interest rates or other dislocations in the housing market . . . will affect the control group. They might affect the treatment group, as well, but . . . my estimates are driven by the difference between the experience of those properties . . . that are in the treatment group compared with those in the control group.<sup>1778</sup>

In attempting to disclaim this control problem, however, Dr. Sheppard instead brought it into focus: economic trends unrelated to Indian Point operation affect the control group and the treatment group disproportionately. For example, those

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<sup>1774</sup> See U.S. NRC, Indian Point — Unit 1, <http://www.nrc.gov/info-finder/decommissioning/power-reactor/indian-point-unit-1.html> (last visited October 24, 2013).

<sup>1775</sup> New York NYS-17B Testimony at 29 (Ex. NYSR00224).

<sup>1776</sup> Tr. at 2560 (Dr. Sheppard for New York).

<sup>1777</sup> Tr. at 2588 (Dr. Tolley for Entergy).

<sup>1778</sup> Tr. at 2563-64 (Dr. Sheppard for New York).

in the treatment group, with periods of ownership which started before 1974 and ended after 1976, are more likely to have been impacted by the energy crisis and economic downturn of the late 1970s than those in the control group. Accordingly, it is possible that the lower rate of return experienced by properties in the treatment group was because of this downturn, rather than any effect of IP2 and IP3 specifically.

The error is compounded by the fact that Dr. Sheppard's data are not evenly distributed through time, but are weighted toward more recent home sales. This is readily apparent from the descriptive statistics Dr. Sheppard provides for his data — the minimum, maximum, and mean value for the key variables in his model. For the variable "sale year," which represents the end of a period of ownership of a property, the values range from a minimum of 1959 to a maximum of 2009, with a mean of 1998.<sup>1779</sup> The fact that the mean is closer to the maximum suggests that the dataset is weighted toward more recent sales, which only makes sense, because one of Dr. Sheppard's criteria for selecting properties for inclusion in his study was that the property had been sold between 1999 and 2009.<sup>1780</sup>

That the weighting is, in fact, pronounced is demonstrated by Entergy's witness, Dr. Tolley, who showed that the more recent observations are not only disproportionately represented in the sample, they make up the bulk of the control group.<sup>1781</sup> Accordingly, it is possible that the higher rates of return experienced by the control group are due to the housing bubble of the late 1990s and early 2000s, and not because they avoided the shock of IP2 and IP3 commencing operations. Because Dr. Sheppard does not control for such trends in the housing market, we find that there is no certainty that the effect he is measuring is due to Indian Point, rather than general economic conditions.

Dr. Sheppard also discounts the possibility that other contemporaneous occurrences during this broad, 2-year "event" could have impacted housing values. Dr. Tolley, however, testified that such a long event period imposes "a danger 'that the period under examination is so long that other events might occur which could incorrectly confirm or refute the test hypothesis.'"<sup>1782</sup> Dr. Sheppard did explain that "I'm aware of the fact that there were . . . other industrial land uses, and other changes in land use that happened during that time."<sup>1783</sup> He further claimed that by including the distance from Indian Point as an explanatory variable in his model, he has effectively targeted the analysis to the effects of Indian Point. But, according to Dr. Tolley, because Dr. Sheppard has not identified other sources of

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<sup>1779</sup> New York NYS-17B Testimony at 27 (Ex. NYSR00224).

<sup>1780</sup> *Id.* at 23. A small number of properties were sold outside this time period. *Id.*

<sup>1781</sup> See Entergy NYS-17B Testimony at 109, 119 (Ex. ENT000132).

<sup>1782</sup> *Id.* at 128 (citing R. Smith II, *The 1958 Automobile Information Disclosure Act: A Study of the Impact of Regulation*, 4 J. Indus. Econ. 28, 392 (1980) (Ex. ENT000180)).

<sup>1783</sup> Tr. at 2576 (Dr. Sheppard for New York).

disamenity or controlled for the distance to them, the error remains.<sup>1784</sup> Based on the parties' testimony, we must agree that this identified failure to control for such occurrences deprives Dr. Sheppard's analysis of much of its probative value.

## 2. Comparing Costs and Benefits

Dr. Sheppard also forecasts that a rebound in property values "can be expected to occur when operations cease."<sup>1785</sup> As to how soon the rebound will occur, or whether it will be sudden or gradual, Dr. Sheppard was not specific:

[I]f IPEC were to be completely removed, there would be a period of above-normal returns to residential property owners resulting in substantial property value appreciation. This increase in property values would affect all residential property in place at the time that the IPEC "treatment" is removed. *I have not endeavored to predict when that will occur.*<sup>1786</sup>

Whether the licenses are renewed or not, Dr. Sheppard posits that the same benefit would accrue at the end of the period of operations, and so the choice for decisionmakers is between "getting \$1 billion in 2015 versus getting \$1 billion 20 years later."<sup>1787</sup> What Dr. Sheppard's analysis fails to address, however, is that the end of commercial operations is only the first step in a lengthy process of decommissioning the plant. We find that he has failed to consider that many years may pass between the time the plant ceases operations and when all the spent fuel is removed and the site is fully decommissioned.

Mr. Reamer testified for the Applicant that "Entergy has adopted a decommissioning strategy that involves taking up to 60 years before fully completing decommissioning of the site."<sup>1788</sup> Mr. Boska for the Staff explained that the 60-year decommissioning option allows for radionuclides to decay over time, making it easier to remove waste and easier for technicians to monitor decommissioning activities.<sup>1789</sup> Under this option, "Entergy expects to begin removal of radioactive material in 2064."<sup>1790</sup>

Mr. Reamer testified for Entergy that during decommissioning, "[t]he plant will remain, the spent fuel will remain, the impacts like view of the plant, noise,

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<sup>1784</sup> Tr. at 2579 (Dr. Tolley for Entergy).

<sup>1785</sup> Tr. at 2565 (Dr. Sheppard for New York).

<sup>1786</sup> December 2011 Sheppard Report at 11 (Ex. NYSR00231) (emphasis added).

<sup>1787</sup> *Id.*

<sup>1788</sup> Entergy NYS-17B Testimony at 95 (Ex. ENT000132); *see also* NRC Staff NYS-17B Testimony at 20-21 (Ex. NRCR00081).

<sup>1789</sup> See Tr. at 2718 (Mr. Boska for the NRC Staff).

<sup>1790</sup> NRC Staff NYS-17B Testimony at 21 (Ex. NRCR00081).

traffic remain unchanged . . . .”<sup>1791</sup> Accordingly, we find that during the time between shutdown and decommissioning, the disamenity of the plant would continue to some degree.

Also problematic for Dr. Sheppard’s analysis is the question of the impact of closure of IP2 and IP3 on local property tax revenue. At the Board’s request, Entergy submitted an accounting of its current tax and PILOT payments.<sup>1792</sup> In 2012, Entergy paid approximately \$27 million in PILOT payments to Westchester County, the Town of Cortlandt, Hendrick Hudson School District, and the Village of Buchanan for those parcels of the plant not currently subject to property tax assessment; and approximately \$871,000 in property taxes for the remaining parcels not covered by the PILOT agreement.<sup>1793</sup> In 2014 and 2015, Entergy’s PILOT agreements will expire if not renewed.<sup>1794</sup> If Indian Point shuts down, a party may terminate the agreement, “in which case the property will immediately become subject to assessment and taxation under New York’s normal property tax system.”<sup>1795</sup> Because the plant parcels are not currently subject to assessment, it is unclear what Entergy’s tax payments would be during decommissioning, but we agree that it is reasonable to assume, as Entergy states, that the value “would be significantly diminished in the context of a permanent shut-down.”<sup>1796</sup>

Dr. Sheppard’s final report does not assess the reduction in revenues from the PILOT and other taxes that would no longer be paid by Entergy. Because Dr. Sheppard makes no assessment of the costs to the community of the license denial alternative, he makes no comparison of the calculated property value benefits against the costs of reduced revenues from Entergy. He thus does not address the possibility that although the property tax revenue benefits associated with increased home values may be gradual during and after the lengthy decommissioning period, the costs associated with lost property tax revenues will be immediate. Benefits and costs that occur across time should be adjusted via a discount rate to account for the time value of money.

Dr. Tolley testified that the “present value loss of the PILOT payments . . . [is] overwhelming . . . [as compared to] the property value rebound, because the property value rebound isn’t felt for so many years in the future.”<sup>1797</sup> Based on the experience of other closed plants, Dr. Tolley estimated “that Entergy’s PILOT and property tax payments would be approximately 18 percent of what they are

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<sup>1791</sup> Tr. at 2617 (Mr. Reamer for Entergy).

<sup>1792</sup> See Declaration of Cory Gruntz (Nov. 21, 2012) (Ex. ENT000591).

<sup>1793</sup> *Id.* at 2, 4.

<sup>1794</sup> *Id.* at 4.

<sup>1795</sup> *Id.*

<sup>1796</sup> *Id.*

<sup>1797</sup> Tr. at 2659-60 (Dr. Tolley for Entergy).

now . . .”<sup>1798</sup> He calculated that the present value of lost PILOT payments over the 20-year renewal period is approximately \$180 million, compared to the \$18 million present value of the \$1 billion in future benefits associated with property values rebounding.<sup>1799</sup> We find Dr. Tolley’s estimation reasonable and adopt his conclusion.

Additionally, Dr. Sheppard’s hypothesis that shutting down Indian Point will cause property values to rebound on the order of \$1 billion depends on the assumption that Indian Point will be promptly replaced with another use that does not present a disamenity. We find that this assumption is unfounded. The land on which Indian Point sits is zoned for heavy industrial use, and there is no compelling reason to believe that this will change, even though Dr. Sheppard speculates that rising property values during and after IPEC’s decommissioning phase could lead local land owners to petition for a change in zoning.<sup>1800</sup> On the contrary, the 2005 master plan for the Village of Buchanan suggests that, even in the event of a facility shutdown, the site “is likely to remain industrial for the foreseeable future.”<sup>1801</sup>

Dr. Sheppard testified that, in theory, and taking into account regulatory restrictions, land will be “used for those purposes that generate the greatest value . . .”<sup>1802</sup> He testified that he has not undertaken an examination “of what might constitute the highest and best use” at the Indian Point site post-decommissioning, or “what’s likely to happen there.”<sup>1803</sup> But his assertion that the community will reap a \$1 billion gain in property values presupposes that Indian Point will not be replaced by another industrial usage with its own set of property value impacts, and on this there is simply no evidence to support Dr. Sheppard’s suppositions. If the licenses for IP2 and IP3 are not renewed, the industrial disamenities at the site will likely continue. Perhaps if Indian Point had never been built the site would not be industrial now, but that ship sailed many years ago.

### **3. Entergy’s Alternatives Analysis**

To rebut Dr. Sheppard’s analysis, Entergy put forward a competing study of

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<sup>1798</sup> Entergy NYS-17B Testimony at 102 (Ex. ENTR00132).

<sup>1799</sup> George S. Tolley, Property Value Effects of Indian Point License Renewal (Mar. 2012) at 53 (Ex. ENT000144) [hereinafter Tolley Report].

<sup>1800</sup> Tr. at 2612 (Dr. Sheppard for New York).

<sup>1801</sup> Village of Buchanan, Comprehensive Master Plan (Mar. 2005) at IIB-11 (Ex. ENTR00137).

<sup>1802</sup> New York NYS-17B Testimony at 8 (Ex. NYSR00224).

<sup>1803</sup> Tr. at 2611 (Dr. Sheppard for New York). In Dr. Sheppard’s 2007 report, he stated that “the highest and best alternative use of the site where the nuclear power plant is located would . . . [be] a combination of attractive riverfront development that would be likely to include employment and other attractive locations.” 2007 Sheppard Report at 3 (Ex. NYS000226).

Indian Point's effect on property values prepared by its expert, Dr. Tolley.<sup>1804</sup> Rather than looking at the change in rates of return over time, Dr. Tolley compared the asking prices for homes listed on the market at a single point in time (July 2011) at varying distances from Indian Point.<sup>1805</sup> By controlling for the characteristics of individual homes, he hoped to find the marginal effect of distance from Indian Point (if any) on the price of a home.<sup>1806</sup> This method of isolating a characteristic of valuation was referred to by Dr. Tolley as hedonic regression.<sup>1807</sup>

Dr. Tolley's model estimated the effect of distance from Indian Point on housing price as a quadratic equation.<sup>1808</sup> He explained that if Indian Point is a disamenity, the expected result would be that prices would rise sharply at short distances from the plant, and then would continue to increase more gradually with increasing distances.<sup>1809</sup> Instead, the outcome of Dr. Tolley's regression was the paradoxical result that prices are higher for homes nearest to the plant as compared to homes a short distance from the plant, and for homes beyond a short distance from the plant prices begin to rise at an increasing rate at farther distances. The results of his analysis imply that nearness to IPEC is actually an amenity up to almost 2 miles from the plant, but then becomes an increasingly larger disamenity as distance from the plant becomes greater.<sup>1810</sup> Dr. Tolley concludes that "the regression gives no support for the hypothesis that [Indian Point] depresses property values."<sup>1811</sup>

Dr. Sheppard testified that he believes that Dr. Tolley's results corroborate his own study, pointing out that the effect of the linear term of distance is not statistically significant, only the quadratic (squared) term is.<sup>1812</sup> Therefore, according to Dr. Sheppard, one should drop the insignificant linear term, producing the result that prices continuously rise with distance, consistent with his preferred disamenity.<sup>1813</sup> We do not agree, and place more weight on Dr. Tolley's conclusion attributing the statistical significance of the distance-squared term to "unmeasured effects that happen to be correlated with distance."<sup>1814</sup>

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<sup>1804</sup> See Tolley Report (Ex. ENT000144).

<sup>1805</sup> *Id.* at 5.

<sup>1806</sup> *Id.*

<sup>1807</sup> *Id.*

<sup>1808</sup> *Id.* at 20. A quadratic equation describes the relationship between two variables (here, home prices and distance from Indian Point) as a function of the square of one of the variables (here, distance from Indian Point).

<sup>1809</sup> *Id.*

<sup>1810</sup> *Id.* at 21.

<sup>1811</sup> *Id.* at 22; *see also* Tr. at 2594-96 (Dr. Tolley for Entergy).

<sup>1812</sup> Tr. at 2600-01 (Dr. Sheppard for New York).

<sup>1813</sup> Tr. at 2684 (Dr. Sheppard for New York).

<sup>1814</sup> Tolley Report at 22 (Ex. ENT000144); *see also* Tr. at 2594-96 (Dr. Tolley for Entergy).

Further, Dr. Sheppard criticized Dr. Tolley's analysis for not considering other functional forms, particularly the square root of distance.<sup>1815</sup> Applying the square root of distance estimation to Dr. Tolley's data, Dr. Sheppard obtained a statistically significant result.<sup>1816</sup> In response, however, Dr. Tolley testified that Dr. Sheppard's suggestion of the square root of distance could be seen as an instance of "cherry picking" a model to fit the data.<sup>1817</sup> We agree.

Similar to Dr. Sheppard's analysis, Dr. Tolley's regressions suffer from design flaws that render them of limited value in determining the effect of the plant on local property values. As Dr. Tolley conceded, "unobserved or omitted variables have a large potential influence in hedonic pricing analysis."<sup>1818</sup> Chiefly, Dr. Tolley's model does not control for the effect of other disamenities in the vicinity of Indian Point.

Dr. Sheppard additionally criticized Dr. Tolley's study for "the small sample size, the use of asking price instead of sales price, the inconsistencies in distance variables used, the lack of a true control group, and the failure to evaluate alternative functional forms,"<sup>1819</sup> all of which we consider to be compelling criticisms. But we find that the same is true of Dr. Sheppard's analysis, which we find suffers from glaring fatal flaws not readily inherent in Dr. Tolley's conclusions.

#### ***4. Adequacy of the NRC Staff's Analysis***

In the ruins of this statistical labyrinth, we are left to determine whether the Staff's FSEIS complies with NEPA. We conclude that it does. Although the Staff's analysis is minimal, based on the evidentiary record, we cannot say that it is incorrect, or that it fails to take the requisite "hard look."

The Staff's assessment that the effects of relicensing IP2 and IP3 on offsite land use will be "small" reflects the fact that an additional 20 years of operation will retain the status quo. New York has put forward no evidence to indicate that any significant land-use changes will occur during the renewal period, other than the allegation that the continued presence of Indian Point keeps housing values below their potential and prevents an earlier transition of the Indian Point site to other, potentially higher-value uses.

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<sup>1815</sup> New York NYS-17B Rebuttal Testimony at 24 (Ex. NYS000434).

<sup>1816</sup> *Id.* at 36.

<sup>1817</sup> Tr. at 2609 (Dr. Tolley for Entergy). Dr. Tolley's report notes that "[s]ensitivity tests were run with alternative functional forms (log-log, semi-log, linear form without distance squared) that did not change the conclusion." Tolley Report at 22 (Ex. ENT000144).

<sup>1818</sup> Entergy NYS-17B Testimony at 63 (Ex. ENTR00132).

<sup>1819</sup> New York NYS-17B Rebuttal Testimony at 38 (Ex. NYS000434).

The Staff maintained that it is not required to consider the impacts of relicensing Indian Point and the no-action alternative on property values.<sup>1820</sup> We do not think that such a cramped interpretation is consistent with NEPA's mandate to consider impacts "affecting the quality of the human environment."<sup>1821</sup>

But the dispute is irrelevant here because, despite its protestations, the Staff has analyzed the impacts on property values. As it turns out, the Staff did undertake a reasonable analysis of the effects on land use of renewing the licenses for IP2 and IP3. Further, the case study of Indian Point in the GEIS provides the basis for the Staff's conclusion that renewal would have no new impacts on housing values. And although the Staff's discussion in the FSEIS was limited to population-based and taxation-based impacts, the GEIS included an analysis of the effect of renewal on property values.<sup>1822</sup>

We likewise find that the Staff undertook sufficient consideration of the license denial and its effects on land use. The Staff noted that shutdown of Indian Point could cause property values in the vicinity to increase, along with property tax revenues, but it reasonably concluded that these effects could (and probably would) be counteracted by the loss in PILOT revenues.<sup>1823</sup>

Although the Staff did not undertake an independent quantitative analysis of the effects of plant shutdown on tax revenues and property values, to do so was not required. NEPA "does not call for certainty or precision, but an *estimate* of anticipated (not unduly speculative) impacts."<sup>1824</sup> Further, "an environmental impact statement [is not] intended to be a 'research document,' reflecting the frontiers of scientific methodology."<sup>1825</sup>

## F. Conclusions of Law

We find that a preponderance of the evidence submitted regarding this contention supports the conclusion that, in this case, the Staff's reasoned, qualitative approach to weighing the costs and benefits of plant shutdown on property values and the local community was reasonable and satisfies the requirements of 10 C.F.R. § 51.95 and NEPA. Accordingly, NYS-17B is resolved in favor of the NRC Staff and the issues raised by this contention do not prevent the Commission from issuing the requested renewal license.

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<sup>1820</sup> NRC Staff NYS-17B Testimony at 7 (Ex. NRCR00081).

<sup>1821</sup> See 42 U.S.C. § 4332.

<sup>1822</sup> GEIS at 4-109 (Ex. NYS00131B).

<sup>1823</sup> FSEIS at 8-15 (Ex. NYS00133C).

<sup>1824</sup> *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-05-20, 62 NRC 523, 536 (2005) (emphasis in original).

<sup>1825</sup> *Pilgrim*, CLI-10-11, 71 NRC at 315.

## **X. NEPA CONTENTION NYS-37 (NO-ACTION ALTERNATIVE)**

### **A. Statement of Contention NYS-37**

NYS-37, a NEPA contention that challenges the lack of an energy alternatives discussion, as litigated on October 24 and November 28, 2012,<sup>1826</sup> reads as follows:

The FSEIS discussion of energy alternatives (Chapter 8) fails to provide a meaningful analysis of energy alternatives or responses to criticism of the DSEIS, in violation of the requirements of 42 U.S.C. §§ 4331 and 4332; 10 C.F.R. §§ 51.91(A)(1), and (C), 51.92(2), 51.95(C)(4), and Part 51, Subpart A, Appendix A and Appendix B; 40 C.F.R. §§ 1052.1, 1052.2(G), 1502.9, and 1502.14; and 5 U.S.C. § 551 *et seq.*<sup>1827</sup>

### **B. NYS-37 Background**

#### **1. NYS-37 Procedural History**

NYS-37 updated and superseded NYS-9 and NYS-33. We admitted NYS-9 on the limited ground that it challenged the lack of an energy-alternative discussion in the “no-action” section of the ER.<sup>1828</sup> Subsequently, after publication of the DSEIS, we admitted NYS-33, which alleged that the discussion of energy alternatives in the DSEIS violated NEPA because it failed to provide a rigorous analysis of the costs, benefits, and feasibility of energy conservation and other measures under the “no-action” alternative.<sup>1829</sup> Simultaneously, we consolidated NYS-33 with NYS-9 “based on the similarities of issues . . .”<sup>1830</sup>

On July 6, 2011, the Board admitted NYS-37 “to the extent that it update[d] and supersede[d] NYS-9/33 and to the extent that it challenge[d] the adequacy of the discussion in the FSEIS addressing comments made regarding the environmental impact of the no-action alternative as described in the DSEIS.”<sup>1831</sup> When admitting this contention, we reminded the parties that “we [were] not authorizing a broad-ranged inquiry into alternative scenarios and the need for power, which [are]

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<sup>1826</sup> Tr. at 2919-3273.

<sup>1827</sup> Licensing Board Memorandum and Order (Ruling on Pending Motions for Leave to File New and Amended Contentions) (July 6, 2011) at 29 (unpublished).

<sup>1828</sup> Licensing Board Memorandum and Order (Ruling on Petitions to Intervene and Requests for Hearing) (July 31, 2008) at 49 (unpublished).

<sup>1829</sup> Licensing Board Order (Ruling on New York State’s New and Amended Contentions) (June 16, 2009) at 9, 13 (unpublished).

<sup>1830</sup> *Id.* at 13.

<sup>1831</sup> Licensing Board Memorandum and Order (Ruling on Pending Motions for Leave to File New and Amended Contentions) (July 6, 2011) at 34 (unpublished).

precluded by Commission regulations [in a license renewal proceeding], and which [this Board had] previously excluded.”<sup>1832</sup>

## **2. Legal Standards and Issues Related to NYS-37**

### *a. No-Action Alternative*

When taking the requisite hard look at the environmental consequences of the alternatives to the proposed licensing action, NRC regulations require the EIS to discuss the no-action alternative.<sup>1833</sup> The NRC’s GEIS defines and explains the no-action alternative in the arena of license renewal as follows:

[T]he no-action alternative is denial of a renewed license. Denial of a renewed license as a power generating capability may lead to a variety of potential outcomes. In some cases, denial may lead to the selection of other electric generating sources to meet energy demands as determined by appropriate state and utility officials. In other cases, denial may lead to conservation measures and/or decisions to import power. In addition, denial may result in a combination of these different outcomes. Therefore, the environmental impacts of such resulting alternatives would be included as the environmental impacts of the no-action alternative.<sup>1834</sup>

Thus, the Staff is instructed to analyze the potential environmental impacts associated with not renewing the license within the “no-action alternative” section of the energy alternatives chapter in the EIS.<sup>1835</sup>

Commission regulations, however, do not require the inclusion of an analysis within the EIS regarding the need for the power generated by an existing plant in license renewal proceedings.<sup>1836</sup> Specifically, 10 C.F.R. § 51.95(c)(2) reads, in pertinent part:

The supplemental environmental impact statement for license renewal is not required to include discussion of need for power or the economic costs and economic benefits of the proposed action or of alternatives to the proposed action except insofar as such benefits and costs are either essential for a determination regarding the inclusion of an alternative in the range of alternatives considered or relevant to mitigation.

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<sup>1832</sup> *Id.* at 35.

<sup>1833</sup> 10 C.F.R. Part 51, Subpart A, App. A, § 4.

<sup>1834</sup> GEIS at 8-2 (Ex. NYS00131D).

<sup>1835</sup> RES, NRC, Standard Review Plans for Environmental Reviews for Nuclear Power Plants NUREG-1555, Supp. 1: Operating License Renewal at 8.1-3 (Oct. 1999) (Ex. ENT00019B).

<sup>1836</sup> See 10 C.F.R. § 51.95(c)(2).

*b. NEPA*

NYS-37 arises under NEPA and the NRC's implementing Part 51 regulations.<sup>1837</sup> As noted above, NEPA requires that an agency must prepare an EIS before approving any major federal action that may significantly affect the quality of the human environment.<sup>1838</sup> The goal of NEPA is twofold: (1) to ensure that agency decisionmakers will have detailed information concerning significant environmental impacts of proposed projects when they make their decisions; and (2) to guarantee that such information will be available to the larger audience that may also play a role in the decisionmaking process.<sup>1839</sup>

Pursuant to 10 C.F.R. § 51.91(a)(1), “[t]he final environmental impact statement will include responses to any comments on the draft environmental impact statement . . . .” These responses may include:

- (i) Modification of alternatives, including the proposed action;
- (ii) Development and evaluation of alternatives not previously given serious consideration;
- (iii) Supplementation or modification of analyses;
- (iv) Factual corrections;
- (v) Explanation of why comments do not warrant further response, citing sources, authorities or reasons which support this conclusion.<sup>1840</sup>

**3. *Evidentiary Record Related to NYS-37***

*a. Identification of Witnesses Who Provided Testimony Relevant to NYS-37*

Entergy presented three witnesses to provide testimony on NYS-37 — Donald Cleary,<sup>1841</sup> David Harrison, Jr.,<sup>1842</sup> and Eugene Meehan.<sup>1843</sup> On March 30, 2012, Entergy filed the written testimony of these three witnesses.<sup>1844</sup> On October 15, 2012, this testimony was admitted into evidence.<sup>1845</sup>

The NRC Staff presented one witness to provide testimony on NYS-37 —

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<sup>1837</sup> 42 U.S.C. §§ 4321-70; 10 C.F.R. Part 51.

<sup>1838</sup> 42 U.S.C. § 4332(2)(C).

<sup>1839</sup> *Robertson*, 490 U.S. at 349.

<sup>1840</sup> 10 C.F.R. § 51.91(a)(1)(i)-(v).

<sup>1841</sup> Curriculum Vitae of Donald P. Cleary (Ex. ENT000133).

<sup>1842</sup> Curriculum Vitae of David Harrison, Jr. (Ex. ENT000480).

<sup>1843</sup> Curriculum Vitae of Eugene T. Meehan (Ex. ENT000482).

<sup>1844</sup> Testimony of Entergy Witnesses Donald P. Cleary, David Harrison, Jr., and Eugene T. Meehan Regarding Contention NYS-37 (Energy Alternatives) (Mar. 30, 2012) (Ex. ENT000479) [hereinafter Entergy NYS-37 Testimony].

<sup>1845</sup> Tr. at 1269 (Judge McDade).

Andrew Stuyvenberg.<sup>1846</sup> On March 30, 2012, the NRC Staff filed the written testimony of this witness.<sup>1847</sup> On October 15, 2012, this testimony was admitted into evidence.<sup>1848</sup>

New York presented three witnesses to provide testimony on NYS-37 — David Schlissel,<sup>1849</sup> Peter Bradford,<sup>1850</sup> and Peter Lanzalotta.<sup>1851</sup> New York submitted the written testimony on December 14, 2011.<sup>1852</sup> Subsequently, New York filed rebuttal written testimony.<sup>1853</sup> On October 15, 2012, both of these submissions were admitted into evidence.<sup>1854</sup>

*b. Identification of Admitted Exhibits Relevant to NYS-37*

Relevant to NYS-37, New York submitted 124 exhibits, the NRC Staff submitted 16 exhibits, and Entergy submitted 52 exhibits.<sup>1855</sup> All of these exhibits were admitted into the record on October 15, 2012.<sup>1856</sup>

**C. Discussion of the No-Action Alternative in the FSEIS**

“At the heart of this contention is the claim that the NRC Staff relied on outdated information and ignored well-reasoned and supported comments to the DSEIS in conducting its analysis and in reaching conclusions relating to the no-action alternatives that were articulated in the FSEIS.”<sup>1857</sup> According to

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<sup>1846</sup> Statement of Qualifications of Andrew L. Stuyvenberg (Ex. NRC000083).

<sup>1847</sup> NRC Staff’s Testimony of Andrew L. Stuyvenberg Concerning Contention NYS-9, NYS-33 and NYS-37 (Alternatives, Consolidated) (Mar. 30, 2012) (Ex. NRC000133) [hereinafter Andrew Stuyvenberg Testimony].

<sup>1848</sup> Tr. at 1269 (Judge McDade).

<sup>1849</sup> Curriculum Vitae of David A. Schlissel (Ex. NYS000050).

<sup>1850</sup> Curriculum Vitae of Peter A. Bradford (Ex. NYS000104).

<sup>1851</sup> Curriculum Vitae of Peter J. Lanzalotta (Ex. NYS000097).

<sup>1852</sup> Pre-filed Written Testimony of David A. Schlissel Regarding Contention NYS-37 (Dec. 13, 2011) (Ex. NYS000046) [hereinafter David Schlissel Testimony]; Pre-filed Written Testimony of Peter Bradford Regarding Contention NYS-9-33-37 (“NYS-37”) (Dec. 13, 2011) (Ex. NYS000048) [hereinafter Peter Bradford Testimony]; Pre-Filed Written Testimony of Peter J. Lanzalotta Regarding Contention NYS-9-33-37 (Dec. 13, 2011) (Ex. NYS000047) [hereinafter Peter Lanzalotta Testimony].

<sup>1853</sup> Pre-Filed Written Rebuttal Testimony of David A. Schlissel Regarding Contention NYS-37 (June 29, 2012) (Ex. NYS000437).

<sup>1854</sup> Tr. at 1269 (Judge McDade).

<sup>1855</sup> See Appendix B of this Partial Initial Decision.

<sup>1856</sup> Tr. at 1269 (Judge McDade).

<sup>1857</sup> Licensing Board Memorandum and Order (Ruling on Pending Motions for Leave to File New and Amended Contentions) (July 6, 2011) at 34 (unpublished).

New York's witness, David Schlissel, the Staff's FSEIS<sup>1858</sup> "ignored significant developments that have occurred in New York State's energy markets since the [ER] was released in 2007 that make it more likely that New York State can replace Indian Point's generation by 2015 when the [Indian Point] units are scheduled to retire . . ."<sup>1859</sup> Primarily, according to Mr. Schlissel, the 2007 ER "predated the 2007 financial crisis, the subsequent prolonged economic recession, fundamental changes in the natural gas sector, significant decreases in wholesale energy prices, and decreased energy demand and load forecasts."<sup>1860</sup> Thus, according to Mr. Schlissel:

[t]hese reduced energy sales and peak loads will delay and defer the need for the energy and capacity from Indian Point Units 2 and 3 if their operating licenses were not renewed and will likewise impact the timing and viability of the no-action energy alternative. Cumulatively, these developments create a more favorable environment for retiring Indian Point Units 2 and 3 at the end of their operating licenses . . . and for replacing their generation capacity with energy efficiency, repowered generation, purchased electrical power, renewable energy, or some combination thereof, at less environmental impact and cost than considered by the FSEIS.<sup>1861</sup>

More specifically, Mr. Schlissel testified that the ER and the FSEIS externally relied upon "the National Research Council's 2006 report on the alternatives to Indian Point and Levitan's 2005 report on the retirement of Indian Point and the natural gas sector."<sup>1862</sup> According to Mr. Schlissel, because these studies predated the 2007 financial crisis, they do not accurately reflect the "lower than expected electricity sales and peak loads and reduced projections of future electricity sales and peak loads for an extended period of time and will impact directly the time frame within which the alternatives . . . would need to be implemented under the no-action alternative."<sup>1863</sup> Mr. Schlissel further stated that the Staff's "impact analysis ignores the fact that New York State experienced a 4.1% drop in power demand due to the recession and weak economic recovery."<sup>1864</sup>

Mr. Schlissel also testified that the collapse of natural gas prices, in conjunction with the recession, has been "game changing" in the energy market since 2007.<sup>1865</sup> He asserted that these combined factors have "complement[ed] each other such

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<sup>1858</sup> The no-action alternative is discussed primarily in sections 8.2, 8.3, and 8.4 of the FSEIS. See FSEIS (Ex. NYS00133C).

<sup>1859</sup> David Schlissel Testimony at 6 (Ex. NYS000046).

<sup>1860</sup> *Id.* at 9-10.

<sup>1861</sup> *Id.* at 7.

<sup>1862</sup> *Id.* at 10.

<sup>1863</sup> *Id.* at 11.

<sup>1864</sup> *Id.* at 11-12.

<sup>1865</sup> See Tr. at 2952 (Mr. Schlissel for New York).

that a lot of the base load coal plants . . . are falling victim to the economics of not being used as much as they had been prior” to 2007.<sup>1866</sup> Thus, according to Mr. Schlissel, these recent factors and their environmental impacts need to be considered when analyzing the possibility of removing Indian Point from the New York energy suppliers under the no-action alternative section of the FSEIS.<sup>1867</sup> This, according to Mr. Schlissel, the Staff failed to do.<sup>1868</sup>

Additionally, Mr. Schlissel criticized the Staff for not performing a site-specific analysis of energy efficiency as an alternative to relicensing Indian Point.<sup>1869</sup> He asserts that in lieu of a site-specific analysis, the Staff generically adopted within the Indian Point FSEIS the energy efficiency findings of its Shearon Harris<sup>1870</sup> and Three Mile Island Unit 1 assessments.<sup>1871</sup>

According to Mr. Schlissel, using the Shearon Harris energy efficiency findings in the Indian Point FSEIS fails to provide a factual basis for the energy conservation conclusions within the no-action alternative section because “[t]he Shearon Harris facility shares little, if any, similarity to the substantially larger, deregulated, Indian Point facilities.”<sup>1872</sup> In addition, he testified that the energy efficiency findings in the Three Mile Island Unit 1 assessment are not relevant here because these findings rely “on a single study, conducted in 2004 of Pennsylvania’s energy efficiency potential . . . [that] makes no reference to New York State, Indian Point, or the energy efficiency potential relevant or forecasted to be available in the zones currently receiving power from Indian Point.”<sup>1873</sup>

Mr. Schlissel also testified that the “Staff’s analysis of New York’s renewable sector is neither consistent nor thorough.”<sup>1874</sup> He stated, as indicated in his 2009 and 2011 declarations, that New York State can replace a significant amount of the capacity and energy supplied by Indian Point with renewable generation if the units are not relicensed.<sup>1875</sup> According to Mr. Schlissel, New York is well on its way to meeting this goal as illustrated by the fact that the percentage of in-state electricity used between 2001 and 2009 generated by in-state renewable resources

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<sup>1866</sup> *Id.*

<sup>1867</sup> See Tr. at 2953 (Mr. Schlissel for New York).

<sup>1868</sup> *See id.*

<sup>1869</sup> See David Schlissel Testimony at 23 (Ex. NYS000046).

<sup>1870</sup> *Id.*; see also NRR, GEIS, Supp. 33 Regarding Shearon Harris Nuclear Power Plant, Unit 1 Final Report, NUREG 1437 (Aug. 2008) (Ex. NYS000065).

<sup>1871</sup> David Schlissel Testimony at 23 (Ex. NYS000046); see also NRR, GEIS, Supp. 37 Regarding Three Mile Island Nuclear Station, Unit 1 Final Report, NUREG 1437 (June 2009) (Ex. NYS000066).

<sup>1872</sup> David Schlissel Testimony at 23 (Ex. NYS000046).

<sup>1873</sup> *Id.* at 23-24.

<sup>1874</sup> *Id.* at 29.

<sup>1875</sup> *Id.* at 26.

increased from 16% to 23%.<sup>1876</sup> However, according to Mr. Schlissel, these facts, which were provided to the Staff in the contentions and DSEIS comments for this proceeding, were not analyzed in the FSEIS.<sup>1877</sup>

According to Mr. Schlissel, the Staff disregarded the reports and declarations he had provided with contentions and DSEIS comments for this proceeding, and instead relied on the Department of Energy's and the Energy Information Administration's (DOE/EIA) annual energy outlook report for 2010 to 2035 to analyze New York's renewable sector to “help select reasonable alternatives to license renewal.”<sup>1878</sup> For instance, in Mr. Schlissel's opinion, the Staff adopted “DOE/EIA's conclusion that coal generation is forecast to decline, but [inexplicably] ignore[d] DOE/EIA's conclusion that renewable generation is forecast to sharply increase over the time period relevant to license renewal.”<sup>1879</sup> A further example of how the Staff's analysis was deficient, according to Mr. Schlissel, is that “the FSEIS emphasizes the negative environmental impacts of wind, while discounting its positive environmental benefits.”<sup>1880</sup>

In addition, Mr. Schlissel criticized the FSEIS for not analyzing the reduced need for capacity through the improvements that New York has made to the downstate electricity grid since 2007.<sup>1881</sup> He testified that, “developers in New York have been actively licensing and building upgrades and enhancements to the transmission system.”<sup>1882</sup> For instance, the “three Linden Variable Frequency Transformers began operating at the Linden New Jersey cogeneration facility on December 8, 2009 and have the capability to feed up to 315 MW of electricity into New York City from the New Jersey power system.”<sup>1883</sup> According to Mr. Schlissel, “[t]hese transformers are helping to stabilize NYC's power grid, increase reliability, and reduce the need for new capacity inside the city.”<sup>1884</sup> Yet, the FSEIS failed to discuss this and other operating and proposed upgrades to New York's electricity grid that would “assist in maintaining system reliability in the event that one or both of the Indian Point plants close.”<sup>1885</sup>

For the reasons discussed above, Mr. Schlissel concluded that:

[b]ecause the NRC Staff did not provide an accurate and meaningful impact analysis

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<sup>1876</sup> *Id.* at 27.

<sup>1877</sup> See *id.* at 28-29.

<sup>1878</sup> *Id.* at 29 (citing FSEIS at 8-28 (Ex. NYS00133A)).

<sup>1879</sup> *Id.*

<sup>1880</sup> *Id.* at 33.

<sup>1881</sup> See *id.* at 36.

<sup>1882</sup> *Id.*

<sup>1883</sup> *Id.*

<sup>1884</sup> *Id.* at 36-37.

<sup>1885</sup> *Id.* at 37.

for . . . generation alternatives, and did not accurately account for lowered load forecasts and energy prices, and changes in New York's energy markets since the recession, the FSEIS does not give decisionmakers a real sense of the economic and environmental costs and benefits of the no-action alternative.<sup>1886</sup>

New York's witness, Peter Bradford, largely concurred with Mr. Schlissel.<sup>1887</sup> Mr. Bradford emphasized that the "FSEIS does not give decisionmakers a clear and reasonably up-to-date picture of New York's power supply without one or both of the Indian Point units."<sup>1888</sup> Like Mr. Schlissel, Mr. Bradford opined that the no-action alternative section of the FSEIS inaccurately relies on outdated information.

As a result, Mr. Bradford testified that retiring the Indian Point units will result in fewer environmental impacts than the FSEIS suggests, and that "[m]any of these developments were called to the NRC's attention by witnesses for the State of New York well in advance of the publication of the FSEIS" but the Staff ignored much of this information.<sup>1889</sup> Thus, Mr. Bradford concluded that "the FSEIS overstate[d] the need for [relicensing Indian Point] . . . [and is] likely to mislead decisionmakers as to the environmental impact and feasibility of the no-action alternative to relicensing one or both Indian Point units."<sup>1890</sup>

New York's third witness, Peter Lanzalotta, by and large concurred with Mr. Schlissel and Mr. Bradford.<sup>1891</sup> Mr. Lanzalotta testified that:

[t]he FSEIS provides little or no useful information on whether or to what extent the capabilities of New York State's existing electric transmission system and related facilities will support or limit the various alternatives discussed in Section 8 of the FSEIS and thus what will occur if Indian Point is not relicensed.<sup>1892</sup>

With regard to transmission capacity, Mr. Lanzalotta asserted that the "FSEIS appears to ignore the approval of the Hudson Transmission Partner Line. . . . This 345 kV line will connect Pennsylvania, New Jersey, Maryland grid . . . to midtown Manhattan, running between Bergen Substation in Ridgefield, New Jersey and terminating at Consolidated Edison substations."<sup>1893</sup> According to Mr.

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<sup>1886</sup> *Id.* at 7-8.

<sup>1887</sup> Compare David Schlissel Testimony at 7-8 (Ex. NYS000046) with Peter Bradford Testimony at 7 (Ex. NYS000048).

<sup>1888</sup> Peter Bradford Testimony at 7 (Ex. NYS000048).

<sup>1889</sup> *Id.* at 7-8.

<sup>1890</sup> *Id.* at 34.

<sup>1891</sup> Compare David Schlissel Testimony at 7-8 (Ex. NYS000046) with Peter Bradford Testimony at 7 (Ex. NYS000048) and Peter Lanzalotta Testimony at 5-6 (Ex. NYS000047).

<sup>1892</sup> Peter Lanzalotta Testimony at 5 (Ex. NYS000047).

<sup>1893</sup> *Id.* at 7-8.

Lanzalotta, when approving the Hudson Transmission Partner Line, the New York State Public Service Commission found that “the [Hudson Transmission Partner] facility will assist in maintaining system reliability in the event that one or both of the Indian Point plants close.”<sup>1894</sup>

Mr. Lanzalotta also testified that “[t]he FSEIS ignores substantial developments in the downstate market that reduce the need to implement corrective measures if the [Indian Point] units are retired. As a result, it substantially overstates the potential constraints on replacement power, and overstates the potential economic costs of a[n Indian Point] retirement scenario.”<sup>1895</sup>

In response to New York’s testimony, the Staff’s witness, Andrew Stuyvenberg, emphasized that “[t]he alternatives analysis in Chapter 8 [of the FSEIS] is an *explicit* indication that IP2 and IP3 can be replaced.<sup>1896</sup> According to Mr. Stuyvenberg, in the DSEIS and the FSEIS, the staff considered a number of alternatives that could reasonably and feasibly replace Indian Point.”<sup>1897</sup> Moreover, Mr. Stuyvenberg stressed that the “Staff did not assert that the ‘IP2 and IP3 power reactors’ could not be replaced, nor did it assert that ‘IP2 and IP3 power reactors’ are necessary.”<sup>1898</sup>

In his testimony, Mr. Stuyvenberg stated that while the Staff is not required to analyze energy conservation as an alternative to license renewal, it did so in light of the no-action alternative because of substantial evidence New York provided in its 2009 comments on the DSEIS. While it is his opinion that conservation is not among the reasonable set of alternatives the Staff is required to analyze in the DSEIS or the FSEIS, Mr. Stuyvenberg testified the GEIS addresses conservation, because it is an option “that states and utilities may use to reduce their need for power generation capability.”<sup>1899</sup>

Mr. Stuyvenberg also stated that “[t]he purpose of license renewal is ‘to provide an option that allows for power generation capability beyond the term of a current nuclear power plant operating license in order to meet future system generating needs.’”<sup>1900</sup> Nevertheless, Mr. Stuyvenberg testified that the GEIS acknowledges that “conservation is a possible consequence of the no-action alternative and recognizes that, while conservation is not a discrete power generation source, it is an option that may be used to reduce the need for generation capability.”<sup>1901</sup> He indicated that the GEIS specifically states that energy conservation is an important

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<sup>1894</sup> *Id.* at 8.

<sup>1895</sup> *Id.* at 22.

<sup>1896</sup> Andrew Stuyvenberg Testimony at 54 (Ex. NRC000133).

<sup>1897</sup> *Id.* at 54-55.

<sup>1898</sup> *Id.* at 55.

<sup>1899</sup> *Id.* at 6-7.

<sup>1900</sup> *Id.*

<sup>1901</sup> *Id.* at 7.

tool available to energy planners in managing need for power and generating capacity.<sup>1902</sup> Hence, “[a]s a result, the GEIS thus discusses the environmental impacts of conservation.”<sup>1903</sup>

Mr. Stuyvenberg noted that the Indian Point DSEIS “received a lot of comments and input from various parties, but particularly from the State of New York about the value and the extent to which the State viewed [energy conservation and efficiency] to be an important part of its energy policy and its processes.”<sup>1904</sup> He emphasized that “the Staff relied on [New York’s] DSEIS comments to establish the *state-specific viability* of conservation and energy efficiency [in the FSEIS].”<sup>1905</sup> According to Mr. Stuyvenberg:

[t]hese New-York-specific assertions [made in response to the DSEIS] all indicate that 1) aggressive programs could replace Indian Point’s capacity; 2) the State was actively working to implement programs that were even more aggressive than existing programs and continues to do so; and 3) the State’s potential new programs could provide even more energy efficiency and conservation capacity than existing estimates suggested. These indications all support a conclusion by NRC Staff that New York could conceivably harness sufficient energy efficiency and conservation capacity by 2015 to offset the entire capacity of IP2 and IP3.<sup>1906</sup>

Having said this, Mr. Stuyvenberg testified that, “contrary to New York State’s assertions, the Staff did not rely on either Shearon Harris or Three Mile Island FSEISs to establish the viability of energy efficiency/conservation as alternative to Indian Point license renewal.”<sup>1907</sup> These FSEISs, according to Mr. Stuyvenberg, were only used to determine that “communities immediately surrounding the Indian Point site would suffer prompt and significant negative [economic] impacts, while any potential offsetting benefits from the implementation of conservation programs would be relatively more diffuse, and would not, in an immediate and targeted way, supply replacement revenue to the communities surrounding Indian Point.”<sup>1908</sup> Thus, Mr. Stuyvenberg reiterated that “the Staff relied on New-York-specific estimates of viability submitted by New York State Office of the Attorney General in its DSEIS comments of March 18, 2009” to establish for the FSEIS the viability of energy efficiency and conservation as an alternative to Indian Point license renewal.<sup>1909</sup>

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<sup>1902</sup> *Id.* (citing GEIS at 8-2 (Ex. NYS00131D)).

<sup>1903</sup> *Id.*

<sup>1904</sup> Tr. at 2994 (Mr. Stuyvenberg for the NRC Staff).

<sup>1905</sup> Andrew Stuyvenberg Testimony at 10 (Ex. NRC000133) (emphasis in original).

<sup>1906</sup> *Id.* at 11.

<sup>1907</sup> *Id.* at 12.

<sup>1908</sup> *Id.*

<sup>1909</sup> *Id.*

In response to New York's specific criticisms that the FSEIS failed to analyze the recent improvements New York has made to the downstate electricity grid, Mr. Stuyvenberg testified that "transmission [capacity] is not something the Staff has counted against any alternative [presented in the FSEIS]."<sup>1910</sup> He stated that "it [is] assumed [by the Staff] that any of the alternatives considered would not be constrained by transmission."<sup>1911</sup> Similarly, he testified that while the FSEIS discusses the environmental impacts of energy alternatives to relicensing Indian Point, it does not discuss the environmental impact of constructing transmission systems for those alternative energy sources.<sup>1912</sup>

In response to New York's specific criticism that the FSEIS failed to consider the current low price of natural gas in its analysis of natural-gas-fueled facilities as an alternative to relicensing Indian Point, Mr. Stuyvenberg stated that the Staff did not assign any specific environmental impact to the pricing of natural gas as an alternative energy source to the nuclear energy produced at Indian Point because the pricing of natural gas, and the impact of electricity costs in the event that Indian Point is not relicensed, are out of the NRC's control.<sup>1913</sup> According to Mr. Stuyvenberg,

[i]n responding to comments about the particular issue of electricity costs, the Staff pointed out that any impact on electricity costs and service impacts from the loss of IP-2 and IP-3 electrical generating capacity is speculative. And due to the deregulation of the energy market in the State of New York, competition for the sale of electricity may keep electricity costs and services under control.<sup>1914</sup>

Additionally, in regard to the no-action alternative, Mr. Stuyvenberg testified that:

[it] does not include a discussion of the likelihood or extent of the specific measures to be taken if license renewal is denied. The NRC Staff defers to state and utility-level decisionmakers with regard to decisions about the type and amount of generation to be relied upon should IP2 and IP3 cease operations. Decisions regarding which alternatives to implement are not the NRC's to make.<sup>1915</sup>

But Mr. Stuyvenberg also noted that the FSEIS section on the no-action alternative states that:

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<sup>1910</sup> Tr. at 3213 (Mr. Stuyvenberg for the NRC Staff).

<sup>1911</sup> Tr. at 3213-14 (Mr. Stuyvenberg for the NRC Staff).

<sup>1912</sup> See Tr. at 3215 (Mr. Stuyvenberg for the NRC Staff).

<sup>1913</sup> See Tr. at 3222 (Mr. Stuyvenberg for the NRC Staff).

<sup>1914</sup> *Id.*

<sup>1915</sup> Andrew Stuyvenberg Testimony at 33 (Ex. NRC000133) (quoting FSEIS at 8-22 (Ex. NYS-00133C); *see also* Tr. at 3158 (Mr. Stuyvenberg for the NRC Staff)).

[p]lant shutdown will result in a net loss of power generating capacity. The power not generated by IP2 and IP3 during the license renewal term would likely be replaced by (1) power supplied by other producers (either existing or new units) . . . (2) demand-side management and energy conservation, or (3) some combination of these options. The environmental impacts of these options are considered in Section 8.3 of the SEIS.<sup>1916</sup>

Finally, in response to New York's allegation that the FSEIS failed to respond to New York's comments and criticisms to the DSEIS, Mr. Stuyvenberg noted that New York State submitted over 100 pages of comments on the DSEIS, and testified that contrary to New York's assertions, "the Staff addressed [within the FSEIS] all of the comments submitted by . . . New York State . . ."<sup>1917</sup> In addition to these comments, according to Mr. Stuyvenberg, three New York State executive agencies separately submitted written comments on the DSEIS: the New York State Department of State, the New York State Department of Environmental Conservation, and the New York State Office of the Attorney General.<sup>1918</sup> Mr. Stuyvenberg also noted that "New York State was not the only entity to submit comments on the DSEIS. The Staff responded to approximately 1140 pages of public comments from more than 500 individuals and organizations, many of whom presented views that differed from those presented by New York State."<sup>1919</sup> Mr. Stuyvenberg testified that "[r]egardless of a commenter's identity or view, the Staff evaluated the information presented and, where appropriate, made changes to the text that had appeared in the DSEIS."<sup>1920</sup>

In sum, Mr. Stuyvenberg

disagrees with [New York's allegations in Contention NYS-37]. It is the Staff's position that the alternatives[, including the no-action alternative,] analyzed are reasonable, the analysis is adequate, and that the analysis meets applicable regulatory requirements and thus constitutes a reasonable consideration of the environmental impacts of alternatives to license renewal.<sup>1921</sup>

Entergy witness Mr. Cleary agreed with the Staff that:

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<sup>1916</sup> Andrew Stuyvenberg Testimony at 33 (Ex. NRC000133); *see also* Tr. at 3158 (Mr. Stuyvenberg for the NRC Staff).

<sup>1917</sup> Andrew Stuyvenberg Testimony at 25 (Ex. NRC000133).

<sup>1918</sup> *Id.*

<sup>1919</sup> *Id.* at 27; *see also* FSEIS at App. A (Exs. NYS00133C-D).

<sup>1920</sup> Andrew Stuyvenberg Testimony at 28 (Ex. NRC000133). For instance, Mr. Stuyvenberg testified that "in light of DSEIS comments and the existence of greenhouse-gas policies in New York" the Staff removed coal-fired power as a likely alternative to replace the power generated by Indian Point from the FSEIS. *Id.*

<sup>1921</sup> *Id.* at 3.

the FSEIS contains an appropriate evaluation of alternatives and considers, among other things, the environmental impacts of new natural gas-fired generation, energy conservation, and combinations of alternatives, including a combination involving repowering an existing fossil-powered plant, renewable generation, and a considerable amount of conservation. For alternatives found to not be reasonable alternatives to replace approximately 2000 MWe of baseload power, the FSEIS provides the requisite explanation of the reasons for their elimination. Thus, the FSEIS assessment of alternatives is consistent with NRC guidance, 10 C.F.R. Part 51 regulations, and NEPA.<sup>1922</sup>

Entergy also argued that its “[e]mpirical analyses show that IPEC baseload generation would actually be replaced primarily by fossil-fueled generation, not renewable generation and additional conservation. As a result, according to Entergy, the FSEIS, if anything, likely underestimates the adverse environmental impacts of the no-action alternative.”<sup>1923</sup>

Thus, Entergy’s witnesses concluded that New York’s testimony “contains nothing that substantively calls into question the NRC Staff’s conclusion ‘that the adverse environmental impacts of license renewal for IP2 and IP3 are not so great that preserving the option of license renewal for energy planning decision makers would be unreasonable.’”<sup>1924</sup>

#### D. NYS-37 Findings

The question for this Board is whether the Staff met its NEPA and 10 C.F.R. § 51.91(a)(1) obligations by taking a hard look at the environmental impacts of the no-action alternative and reasonably responding to the comments — regarding the no-action alternative — to the DSEIS within the FSEIS. In short, the answer is yes.

The Staff was not required to agree with or adopt any of New York’s comments to the DESIS to be compliant with NEPA or 10 C.F.R. § 51.91(a)(1). That being said, the Staff is required to comply fully with the procedural edicts of NEPA and 10 C.F.R. § 51.91(a)(1), and we find that it did so.

First, as Mr. Stuyvenberg testified, “[t]he staff responded to approximately 1140 pages of public comments from more than 500 individuals and organizations,” including the more than 100 pages of comments from New York.<sup>1925</sup> These extensive comments and responses — including responses to New York’s

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<sup>1922</sup> Entergy NYS-37 Testimony at 17 (Ex. ENT000479).

<sup>1923</sup> Entergy’s Statement of Position on Contention NYS-37 at 43 (Ex. ENT000478).

<sup>1924</sup> Entergy NYS-37 Testimony at 116 (Ex. ENT000479) (quoting FSEIS at 9-8 (Ex. NYS00133C)).

<sup>1925</sup> Andrew Stuyvenberg Testimony at 25, 27 (Ex. NRC000133); *see also* FSEIS at App. A (Exs. NYS00133C-I).

comments criticizing the Staff’s omissions in the no-action alternative section of the DSEIS — can be found in the 1316 pages of Appendix A to the FSEIS and within Chapter 8 of the FSEIS.<sup>1926</sup> Thus, we find that the Staff met the requirement under 10 C.F.R. § 51.91(a)(1) to respond “to any comments on the draft environmental impact statement.”

Second, contrary to New York’s assertions that the Staff failed to consider New York’s state-specific, aggressive energy conservation and efficiency,<sup>1927</sup> we find that the Staff did the direct opposite in response to New York’s comments to the 2009 DSEIS.<sup>1928</sup> It “develop[ed] and evaluat[ed] alternatives not previously given serious consideration” in the DSEIS by considering, in Chapter 8 of the FSEIS, energy renewal and conservation as an alternative to license renewal for IP2 and IP3.<sup>1929</sup> The Staff ultimately determined in Chapter 8 of the FSEIS that the environmental “impacts of energy conservation ‘are generally lower than those from other alternatives, including the proposed action [of renewing the licenses of IP2 and IP3].’”<sup>1930</sup>

Moreover, we find that the Staff reached its determination that energy efficiency and conservation can stand alone, or be combined with other energy sources, to replace Indian Point’s energy production by relying on New York’s comments about energy efficiency and conservation in the DSEIS. This includes the imposition of aggressive policies like the “45 by 15 clean energy goal,” a goal the State has adopted to meet 45% of its electricity needs by 2015 through increased energy efficiency and renewable energy.<sup>1931</sup>

Similarly, we find credible Mr. Stuyvenberg’s testimony that, contrary to New York’s allegations that the Staff failed to account for New York’s recently improved energy transmission capacity, the Staff’s analysis did not count transmission capacity against any alternative presented in the FSEIS, including the conservation-and-efficiency alternatives.<sup>1932</sup> Along that same line, we find credi-

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<sup>1926</sup> See FSEIS at 8-20 to -72, App. A (Exs. NYS00133C-I).

<sup>1927</sup> See State of New York Initial Statement of Position Contention NYS-9/33/37 (“NYS-37”) (Dec. 14, 2011) at 4 (Ex. NYSR00045).

<sup>1928</sup> Andrew Stuyvenberg Testimony at 8 (Ex. NRC000133) (citing FSEIS at A-984 to -1043 (Ex. NYS00133G)).

<sup>1929</sup> See *id.* (citing FSEIS at 8-41 to -43 (Ex. NYS00133C)). The Staff analyzed energy conservation and efficiency as an alternative to license renewal in the FSEIS for IP2 and IP3 even though the Staff was not required to analyze the need for the power supplied by these reactors under NRC regulations. See 10 C.F.R. § 51.95(c)(2). The Staff does note, however, that it did not specifically analyze the need for the power IP2 and IP3 generate; instead it simply considered energy conservation and efficiency as an alternative to license renewal, which is sanctioned by the GEIS. See Andrew Stuyvenberg Testimony at 31-32 (Ex. NRC000133).

<sup>1930</sup> *Id.* at 8-9 (citing FSEIS at 8-73 (Ex. NYS00133C)).

<sup>1931</sup> FSEIS at 8-43 (Ex. NYS00133C).

<sup>1932</sup> Tr. at 3213-14 (Mr. Stuyvenberg for the NRC Staff).

ble Mr. Stuyvenberg's testimony that the Staff assumed that any of the alternatives considered would not be constrained by transmission.<sup>1933</sup>

Furthermore, based on Mr. Stuyvenberg's testimony, we find: (1) that the Staff's determination of the extent and reliability of the State's renewable energy and energy efficiency policies and its transmission capabilities did not rely on the Shearon Harris FSEIS, the Three Mile Island FSEIS, or the outdated reports mentioned in the testimony of New York's experts, and (2) the FSEIS relied on New York's statements about the State's renewable energy and energy efficiency policies and transmission capabilities as those representations were made in New York's comprehensive comments to the 2009 DSEIS.

In sum, we conclude that, in compliance with NEPA, the NRC Staff has taken a reasonably hard look at the environmental effects of state-specific energy conservation and efficiency as a replacement alternative — both as a stand-alone alternative and as an element within combinations of alternatives — for the electric power produced by IP2 and IP3. We further conclude that the Staff did so, in compliance with 10 C.F.R. § 51.91(a)(1), by carefully analyzing and responding to New York's extensive comments to the DSEIS regarding state-specific energy conservation and efficiency as a replacement alternative.

Moreover, contrary to New York's argument that the "FSEIS . . . emphasizes the environmental costs of fossil fuel generation[,]"<sup>1934</sup> the Board finds that the FSEIS, in compliance with 10 C.F.R. § 51.91(a)(1)(iii), modified the DSEIS analysis of fossil fuel generation, specifically coal-fired power, as an alternative to relicensing Indian Point based on the comments it received from New York on the 2009 DSEIS.<sup>1935</sup> We thus agree with Mr. Stuyvenberg, and find that in the FSEIS the "Staff rejected coal-fired power based on [its] review of likely generating alternatives in New York in light of DSEIS comments and the existence of greenhouse-gas policies in New York."<sup>1936</sup>

Additionally, we find that the Staff, despite New York's assertions to the contrary, did not ignore energy market factors — such as the current low price of natural gas, the recent economic recession, or the reduced energy demand that resulted from the recession — in its FSEIS.<sup>1937</sup> Instead, the Staff found that electricity costs in New York's deregulated energy market are speculative, and thus competition for the sale of electricity may keep electricity costs manageable in the event that Indian Point is not relicensed.<sup>1938</sup> The Staff also concluded that market factors such as competition will drive the price of energy in New York's

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<sup>1933</sup> *Id.*

<sup>1934</sup> New York's Initial Statement of Position on Contention NYS-37 at 4 (Ex. NYSR00045).

<sup>1935</sup> Andrew Stuyvenberg Testimony at 15 (Ex. NRC000133).

<sup>1936</sup> *Id.* at 21 (citing FSEIS at 8-49 (Ex. NYS00133C)).

<sup>1937</sup> Tr. at 3222 (Mr. Stuyvenberg for the NRC Staff).

<sup>1938</sup> *Id.*

deregulated market, not the licensing of specific energy facilities or the preference for a particular energy source. The Board finds this FSEIS analysis and conclusion reasonable under NEPA.

As noted above, the Staff was not obligated under NEPA or 10 C.F.R. § 51.91(a)(1) to fully adopt, or agree with, all of New York's comments to the DSEIS regarding the no-action alternative. Instead, under NEPA, the Staff was required to take a reasonably hard look at the no-action alternative within the FSEIS and, under 10 C.F.R. § 51.91(a)(1), to respond reasonably to the comments on the DSEIS in one of the manners set forth in this regulation. The FSEIS complied with both of these procedural edicts, and thus we find that the Staff fulfilled its responsibilities under NEPA and 10 C.F.R. § 51.91(a)(1) by reasonably responding to New York's comments to the DSEIS regarding the no-action alternative. In doing so, the Staff took a hard look at the environmental impacts of energy alternatives that could reasonably replace energy created by IP2 and IP3 in the event that these units are not relicensed, and appropriately explained its analysis in Chapter 8 and Appendix A of the FSEIS.

#### **E. Conclusions of Law**

We find that a preponderance of the evidence submitted regarding this contention supports the conclusion that, in this case, the Staff adequately addressed comments made regarding the environmental impact of the no-action alternative and the FSEIS was reasonable and satisfies the requirements of 10 C.F.R. § 51.95 and NEPA. Accordingly, NYS-37 is resolved in favor of the NRC Staff and the issues raised by this contention do not prevent the Commission from issuing the requested renewal license.

### **XI. NEPA CONTENTION CW-EC-3A (ENVIRONMENTAL JUSTICE)**

#### **A. Statement of Contention CW-EC-3A**

CW-EC-3A, a NEPA contention that challenges the environmental justice analysis performed by the NRC Staff, as litigated at the evidentiary hearing on October 23, 2012, reads as follows:

Entergy's environmental report and the Final Supplemental Environmental Impact Statement contain seriously flawed environmental justice . . . analyses that do not adequately assess the impacts of relicensing Indian Point on the minority, low-income and disabled populations in the area surrounding Indian Point.<sup>1939</sup>

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<sup>1939</sup> Licensing Board Memorandum and Order (Ruling on Pending Motions for Leave to File New and Amended Contentions) (July 6, 2011) at 60 (unpublished).

## B. CW-EC-3A Background

### 1. CW-EC-3A Procedural History

In its original form, CW-EC-3 alleged that “Entergy’s Environmental Report [ER] containe[d] a seriously flawed environmental justice [EJ] analysis that d[id] not adequately assess the impacts of Indian Point on the minority, low-income, and disabled populations in the area surrounding Indian Point.”<sup>1940</sup>

We admitted this contention, but limited its scope to Clearwater’s allegation that “Entergy’s ER is deficient because it does not supply sufficient information from which the Commission may properly consider, and publicly disclose, environmental factors that may cause harm to minority and low-income populations that would be disproportionate to that suffered by the general population.”<sup>1941</sup> More specifically, we admitted this contention to explore the allegation that Entergy’s ER failed to analyze whether a severe accident would negatively impact certain minority and low-income populations located near Indian Point (“potentially affected EJ populations”) differently than the general population.<sup>1942</sup> Upon admitting this contention, we emphasized that this “is a Part 51 Environmental Contention brought under NEPA[,] . . . not a Part 54 Safety Contention based on emergency planning.”<sup>1943</sup>

On February 3, 2011, Clearwater moved to amend and extend CW-EC-3 based on alleged deficiencies in the December 2010 FSEIS.<sup>1944</sup> In support of its request to amend, Clearwater argued that, in admitting this contention, this Board recognized the potential for disparate impacts on potentially affected EJ populations, but that the FSEIS ignored this issue.<sup>1945</sup> In its request to extend the scope of CW-EC-3, Clearwater provided two grounds: (1) the FSEIS failed to provide an adequate assessment of the EJ impacts of the no-action alternative; and (2) the FSEIS similarly failed to provide an adequate assessment of EJ impacts of installing closed-cycle cooling at Indian Point.<sup>1946</sup>

The Board admitted those portions of CW-EC-3A that sought to update the contention as originally admitted to address the FSEIS. However, we rejected

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<sup>1940</sup> Clearwater Petition at 31.

<sup>1941</sup> LBP-08-13, 68 NRC at 201 (internal quotation omitted).

<sup>1942</sup> *Id.* at 200.

<sup>1943</sup> *Id.* at 201.

<sup>1944</sup> Motion for Leave to Amend and Extend Contention EC-3 Regarding Environmental Justice and Petition to Do So (Feb. 3, 2011).

<sup>1945</sup> *Id.* at 1; *see also id.* at 3, 19.

<sup>1946</sup> *Id.* at 1-2; *see also id.* at 3-10, 20-22.

the proposed extended portions of the contention on timeliness and materiality grounds.<sup>1947</sup>

## **2. Legal Standards and Issues Related to CW-EC-3A**

### *a. Environmental Justice*

In February 1994, President Clinton issued Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.”<sup>1948</sup> This Executive Order directed federal agencies to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human or environmental effects of its programs, policies, and activities on minority populations and low-income populations . . .”<sup>1949</sup>

Independent federal agencies, such as the NRC, were not required, but were requested, to comply with Executive Order 12898.<sup>1950</sup> In response to this request, the Chairman of the NRC sent a letter to President Clinton indicating that the NRC would carry out the measures laid out in Executive Order 12898 as part of the Agency’s NEPA analyses.<sup>1951</sup>

In 1998, the Commission issued *Louisiana Energy Services*,<sup>1952</sup> its first decision addressing EJ. In this decision, the Commission held that “[d]isparate impact analysis is [the NRC’s] principal tool for advancing environmental justice under NEPA. The NRC’s goal is to identify and adequately weigh, or mitigate, effects on low-income and minority communities that become apparent only by considering factors peculiar to those communities.”<sup>1953</sup> These holdings were reiterated in *Private Fuel Storage*,<sup>1954</sup> where the Commission stated that “[e]nvironmental justice, as applied to the NRC, . . . [m]eans that the agency will make an effort under NEPA to become aware of the demographic and economic circumstances of local communities . . .”<sup>1955</sup>

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<sup>1947</sup> Licensing Board Memorandum and Order (Ruling on Pending Motions for Leave to File New and Amended Contentions) (July 6, 2011) at 56 (unpublished).

<sup>1948</sup> Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 11, 1994).

<sup>1949</sup> *Id.* at 7629.

<sup>1950</sup> See Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions, 69 Fed. Reg. 52,040, 52,040-41 (Aug. 24, 2004) (Ex. ENT000260).

<sup>1951</sup> *See id.* (citing Letter from Ivan Selin, NRC Chairman, to President Clinton (Mar. 31, 1994)).

<sup>1952</sup> *Claiborne*, CLI-98-3, 47 NRC 77.

<sup>1953</sup> *Id.* at 100.

<sup>1954</sup> *Private Fuel Storage*, L.L.C. (Independent Spent Fuel Storage Installation), CLI-02-20, 56 NRC 147, 156 (2002).

<sup>1955</sup> *Id.*

The NRC requirement for plant-specific EJ reviews under NEPA is codified in Table B-1 in Appendix B to Subpart A of 10 C.F.R. Part 51, which is entitled “Environmental Effect of Renewing the Operating License of a Nuclear Power Plant.” Table B-1 classifies EJ as a “Category 2” issue. This means that “Environmental Justice was not addressed in NUREG-1437 GEIS and accordingly, EJ must be addressed in individual license renewal reviews.”<sup>1956</sup> This analysis is governed by NEPA and the NRC’s Part 51 regulations.<sup>1957</sup>

b. *NEPA*

CW-EC-3A calls into question the adequacy of the EJ analysis in the Staff’s FSEIS.<sup>1958</sup> As indicated above, CW-EC-3A is a contention that arises under NEPA, which does not mandate substantive results, but rather imposes procedural obligations on agencies, requiring them to take a “hard look” at the environmental impacts of a proposed action and reasonable alternatives to that action.<sup>1959</sup> Accordingly, what is required is an informed discussion of the relevant issues.

As noted in more detail in earlier sections of this order, NEPA requires that before approving any major federal action that may significantly affect the quality of the human environment, an agency prepare an EIS.<sup>1960</sup> The goal of NEPA is twofold: (1) to ensure that agency decisionmakers will have detailed information concerning significant environmental impacts of proposed projects when they make their decisions; and (2) to guarantee that such information will be available to the larger audience that may also play a role in the decisionmaking process.<sup>1961</sup>

However, in the event that a board finds that the Staff’s analysis is insufficient, we need not require that the agency staff “go back to the drawing board” and amend or supplement the EIS. Rather, the Board’s review and admitted exhibits are part of the environmental record upon which the Commission makes its ultimate balancing judgment. “The adjudicatory record and Board decision (and, of course, any Commission appellate decisions) become, in effect, part of the FEIS.”<sup>1962</sup> Accordingly, “to the extent that any environmental findings by the

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<sup>1956</sup> 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1.

<sup>1957</sup> 42 U.S.C. §§ 4321-70; 10 C.F.R. Part 51.

<sup>1958</sup> Motion for Leave to Amend and Extend Contention EC-3 Regarding Environmental Justice and Petition to Do So (Feb. 3, 2011).

<sup>1959</sup> *Claiborne*, CLI-98-3, 47 NRC at 87-88; *see also Balt. Gas & Elec.*, 462 U.S. at 97-98 (holding that NEPA requires agencies to take a “hard look” at environmental consequences prior to taking major actions).

<sup>1960</sup> 42 U.S.C. § 4332(2)(C).

<sup>1961</sup> *Robertson*, 490 U.S. at 349.

<sup>1962</sup> *Claiborne*, L.P., CLI-98-3, 47 NRC at 89.

Presiding Officer (or the Commission) differ from those in the FEIS, the FEIS is deemed modified by the decision.”<sup>1963</sup>

NEPA and Part 51 require that as part of its environmental review the Staff prepare a “Record of Decision” to accompany any Commission decision on any action for which a final EIS has been prepared.<sup>1964</sup> Typically, the Staff prepares the record of decision,<sup>1965</sup> but when, as here, a hearing is held, the Board’s initial decision constitutes the record of decision as to those issues that were litigated during the hearing<sup>1966</sup> and the hearing can provide the public venting that the circulation of an amended EIS would otherwise provide.<sup>1967</sup>

But if modification of the FEIS by Staff testimony or the Board’s decision is too substantial, recirculation of the FEIS would be required. “[I]n a given instance, the staff’s evidence may depart so markedly from the positions espoused or information reflected in the [FEIS] as to require formal redrafting and recirculation for comment of the environmental statement (or at least those portions which are affected by the changes) before the licensing board gives any further consideration to the subjects involved.”<sup>1968</sup>

### **3. *Evidentiary Record Related to CW-EC-A***

#### **a. *Identification of Witnesses Who Provided Testimony Relevant to CW-EC-3A***

Entergy presented three witnesses to provide testimony on CW-EC-3A — Donald Cleary,<sup>1969</sup> Jerry Riggs,<sup>1970</sup> and Michael Slobodien.<sup>1971</sup> On March 29, 2012,

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<sup>1963</sup> *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 53 (2001).

<sup>1964</sup> 10 C.F.R. § 51.102(a).

<sup>1965</sup> *Id.* § 51.102(b).

<sup>1966</sup> *National Enrichment Facility*, LBP-06-8, 63 NRC at 260; *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), LBP-06-19, 64 NRC 53, 69 n.11 (2006).

<sup>1967</sup> *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681 (1985).

<sup>1968</sup> *Allied-General Nuclear Services* (Barnwell Nuclear Fuel Plant Separations Facility), ALAB-296, 2 NRC 671, 680 (1975).

<sup>1969</sup> Curriculum Vitae of Donald P. Cleary (Ex. ENT000133).

<sup>1970</sup> Curriculum Vitae of Jerry L. Riggs (Ex. ENT000008).

<sup>1971</sup> Curriculum Vitae of Michael J. Slobodien (Ex. ENT000262).

Entergy filed the initial testimony of these witnesses regarding CW-EC-3A.<sup>1972</sup> On October 15, 2012, Entergy's testimony was admitted into evidence.<sup>1973</sup>

The NRC Staff presented two witnesses to provide testimony on CW-EC-3A — Jeffrey Rikhoff<sup>1974</sup> and Patricia Milligan.<sup>1975</sup> On March 30, 2012, the NRC Staff filed the written testimony of these witnesses.<sup>1976</sup> On October 15, 2012, the Staff's testimony was admitted into evidence.<sup>1977</sup>

Clearwater presented nine witnesses to provide testimony on CW-EC-3A — Michael Edelstein,<sup>1978</sup> Dr. Andrew Kanter,<sup>1979</sup> Anthony Papa,<sup>1980</sup> Dr. Erik Larsen,<sup>1981</sup> John Simms,<sup>1982</sup> Aaron Mair,<sup>1983</sup> Dolores Guardado,<sup>1984</sup> Stephen Filler,<sup>1985</sup> and Manna Jo Greene.<sup>1986</sup> On December 22, 2011, Clearwater submitted its initial statement of position and written testimony.<sup>1987</sup> Clearwater filed its rebuttal

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<sup>1972</sup> Testimony of Entergy Witnesses Donald P. Cleary, Jerry L. Riggs, and Michael J. Slobodien Regarding Contention CW-EC-3A (Environmental Justice) (Mar. 29, 2012) (Ex. ENT000258) [hereinafter Entergy CW-EC-3A Testimony].

<sup>1973</sup> Tr. at 1269 (Judge McDade).

<sup>1974</sup> Jeffrey J. Rikhoff, Statement of Professional Qualifications (Mar. 30, 2012) (Ex. NRC000082).

<sup>1975</sup> Patricia A. Milligan Statement of Professional Qualifications (Mar. 30, 2012) (Ex. NRC000064).

<sup>1976</sup> NRC Staff Initial Statement of Position Regarding Contention CW-EC-3A (Environmental Justice) (Mar. 30, 2012) at 1 (Ex. NRC000062).

<sup>1977</sup> Tr. at 1269 (Judge McDade).

<sup>1978</sup> Curriculum Vitae of Michael Edelstein (Ex. CLE000011).

<sup>1979</sup> Curriculum Vitae of Dr. Andrew Kanter (Ex. CLE000049).

<sup>1980</sup> Initial Pre-Filed Testimony of Anthony Papa in Support of Hudson River Sloop Clearwater, Inc.'s Contention Regarding Environmental Justice (EC-3A) (dated Oct. 11, 2011 and submitted on Dec. 22, 2011) [hereinafter Anthony Papa Testimony] (Ex. CLE000004).

<sup>1981</sup> Curriculum Vitae of Dr. Erik Larsen (Ex. CLE000020).

<sup>1982</sup> Testimony of John Simms in Support of Hudson River Sloop Clearwater, Inc.'s Contention Regarding Environmental Justice (dated Oct. 11, 2011 and submitted on Dec. 22, 2011) [hereinafter John Simms Testimony] (Ex. CLE000006).

<sup>1983</sup> Curriculum Vitae of Aaron Mair (Ex. CLE000021).

<sup>1984</sup> English Translation of Initial Prefiled Written Testimony of Dolores Guardado Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) [hereinafter Dolores Guardado Testimony] (Ex. CLE000008).

<sup>1985</sup> Initial Prefiled Written Testimony of Stephen Filler Regarding Clearwater's Environmental Justice Contention EC-3A (Ex. CLE000009).

<sup>1986</sup> Resume of Manna Jo Greene (Ex. CLE000024).

<sup>1987</sup> Initial Statement of Position for Clearwater's Contention EC-3A Regarding Environmental Justice (Dec. 22, 2011) [hereinafter Clearwater Initial Statement of Position] (Ex. CLER00002); Testimony of Dr. Michael Edelstein in Support of Hudson River Sloop Clearwater, Inc.'s Contention Regarding Environmental Justice (Dec. 22, 2011) [hereinafter Dr. Edelstein Testimony] (Ex. CLE000003); Anthony Papa Testimony (Ex. CLE000004); Initial Prefiled Written Testimony of Erik A. Larsen, MD, FACEP Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) [hereinafter Dr. Larsen Testimony] (Ex. CLE000005); John Simms Testimony (Ex.

*(Continued)*

testimony on June 28, 2012.<sup>1988</sup> On October 15, 2012, Clearwater's testimony was admitted into evidence.<sup>1989</sup>

*b. Identification of Admitted Exhibits Relevant to CW-EC-3A*

Relevant to CW-EC-3A, Clearwater submitted sixty-four exhibits, the NRC Staff submitted fourteen exhibits, and Entergy submitted fifty-seven exhibits.<sup>1990</sup> All of these exhibits were admitted into the record on October 15, 2012.<sup>1991</sup>

*c. Relevant Guidance Documents*

1. Council on Environmental Quality's (CEQ) Environmental Justice Guidance Under the National Environmental Policy Act (1997) (Ex. ENT000266). In response to Executive Order 12898, the CEQ, "in consultation with EPA and other affected agencies, . . . developed this guidance to further assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed."<sup>1992</sup>

2. NRR Office Instruction — Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues (2004) (Ex. ENT-000261). On May 24, 2004, NRR issued this Change Notice to document its

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CLE000006); Initial Prefiled Testimony of Aaron Mair Regarding Clearwater's Environmental Justice Contention (Dec. 22, 2011) [hereinafter Aaron Mair Testimony] (Ex. CLE000007); Dolores Guardado Testimony (Ex. CLE000008); Initial Prefiled Written Testimony of Stephen Filler Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) [hereinafter Stephen Filler Testimony] (Ex. CLE000009); Initial Prefiled Written Testimony of Manna Jo Greene Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) [hereinafter Manna Jo Greene Testimony] (Ex. CLE000010).

<sup>1988</sup> Rebuttal Testimony of Manna Jo Greene Regarding Clearwater's Environmental Justice Contention EC-3A (June 28, 2012) (Ex. CLE000046); Rebuttal Testimony of Dr. Michael Edelstein Regarding Clearwater's Environmental Justice Contention EC-3A (June 28, 2012) (Ex. CLE000047); Rebuttal Testimony of Dr. Andrew Kanter Regarding Clearwater's Environmental Justice Contention EC-3A (June 28, 2012) (Ex. CLE000048); Michael Edelstein, Ph.D. Rebuttal to Respondents to Testimony on the Environmental Justice Contention Report (June 28, 2012) (Ex. CLE000058); Michael Edelstein, Ph.D. Appendix to Rebuttal to Respondents to Testimony in the Environmental Justice Contention Report (June 28, 2012) (Ex. CLE000059).

<sup>1989</sup> Tr. at 1269 (Judge McDade).

<sup>1990</sup> See Appendix B of this Partial Initial Decision.

<sup>1991</sup> Tr. at 1269 (Judge McDade).

<sup>1992</sup> Council on Environmental Quality, Environmental Justice Guidance Under the National Environmental Policy Act at 1 (1997) (Ex. ENT000266).

"procedure . . . for incorporating environmental justice into the licensing process . . ."<sup>1993</sup>

3. Policy Statement on the Treatment of Environmental Justice matters in NRC Regulatory and Licensing Actions (Ex. ENT000260). The NRC Staff utilized the holdings in *Louisiana Energy Services* and *Private Fuel Storage* to create the "Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions."<sup>1994</sup> In relevant part, this Policy Statement instructs that "[t]he goal of an EJ portion of the NEPA analysis is (1) [t]o identify and assess environmental effects on low-income and minority communities by assessing impacts peculiar to those communities; and (2) to identify significant impacts, if any, that will fall disproportionately on minority and low-income communities."<sup>1995</sup> In discussing the scope of an EJ analysis, this Policy Statement states that:

it is expected that in addition to reviewing available demographic data, a scoping process will be utilized preceding the preparation of a draft EIS. This will assist the NRC in ensuring that minority and low-income communities, including transient populations, affected by the proposed action are not overlooked in assessing the potential for significant impacts unique to those communities.<sup>1996</sup>

#### 4. NRR Office Instruction — Procedural Guidance for Preparing Environ-

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<sup>1993</sup> Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues (May 24, 2004) at 6-7, App. D (Ex. ENT000261).

<sup>1994</sup> Statement on the Treatment of Environmental Justice Matters at 52,040-48 (Ex. ENT000260). It should be noted that:

[t]he critical distinction between a substantive rule and a general statement of policy is the different practical effect that these two types of pronouncements have in subsequent administrative proceedings. A properly adopted substantive rule establishes a standard of conduct which has the force of law. In subsequent administrative proceedings involving a substantive rule, the issues are whether the adjudicated facts conform to the rule and whether the rule should be waived or applied in that particular instance. The underlying policy embodied in the rule is not generally subject to challenge before the agency.

A general statement of policy, on the other hand, does not establish a "binding norm." It is not finally determinative of the issues or rights to which it is addressed. The agency cannot apply or rely upon a general statement of policy as law because a general statement of policy only announces what the agency seeks to establish as policy. A policy statement announces the agency's tentative intentions for the future. When the agency applies the policy in a particular situation, it must be prepared to support the policy just as if the policy statement had never been issued. An agency cannot escape its responsibility to present evidence and reasoning supporting its substantive rules by announcing binding precedent in the form of a general statement of policy. *Pacific Gas and Electric Co. v. Federal Power Commission*, 506 F.2d 33, 38-39 (D.C. Cir. 1974) (citations omitted).

<sup>1995</sup> Statement on the Treatment of Environmental Justice Matters at 52,048 (Ex. ENT000260).

<sup>1996</sup> *Id.*

mental Assessments and Considering Environmental Issues Revision 2 (2009) (Ex. ENT000264). On February 17, 2009, NRR issued this change notice to document its revised procedures for incorporating EJ into its licensing procedures.<sup>1997</sup> These procedures were amended to incorporate the Commission's August 24, 2004, Policy Statement on the Treatment of EJ Matters.<sup>1998</sup>

*d. Motions in Limine*

Entergy filed a motion *in limine* on January 30, 2012, seeking to exclude portions of Clearwater's written testimony and some corresponding exhibits in their entirety.<sup>1999</sup> In denying the motion, the Board reaffirmed that it is "capable of distinguishing between disparaging comments against Indian Point's emergency plans and Clearwater's witnesses' descriptions of how certain EJ populations will be adversely harmed by a severe accident compared to the general population."<sup>2000</sup> The parties were reminded that Clearwater's testimony would be restricted to the discussion of disparate impacts on those populations that are within the definition of an EJ population, and that the Board would disregard any nonconforming evidence in ruling on the merits of this contention.<sup>2001</sup>

Entergy then moved "to exclude: (1) portions of the rebuttal testimony of Dr. Michael Edelstein and Ms. Manna Jo Greene; (2) the entirety of Dr. Andrew S. Kanter's rebuttal testimony; (3) all or portions of Exhibits CLE000050 through CLE000059; and (4) portions of the Clearwater Rebuttal Statement Supporting Contention EC-3A."<sup>2002</sup> According to Entergy, this evidence was not admissible because it:

- (1) broadly challenge[d] the adequacy of emergency plans, contrary to the scope of CW-EC-3A and license renewal; (2) raise[d] issues concerning numerous non-EJ populations and vaguely-defined EJ subgroups, contrary to Commission precedent and NRC Staff guidance; or (3) raise[d] various other issues unquestionably outside the scope of CW-EC-3A and this proceeding, including irrelevant new claims concerning the evacuation-related environmental impacts from terrorist attacks.<sup>2003</sup>

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<sup>1997</sup> Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues (Feb. 11, 2009) at C-6 to -7 (Ex. ENT000264).

<sup>1998</sup> *Id.* at C-1.

<sup>1999</sup> Entergy's Motion in Limine to Exclude Portions of Pre-Filed Testimony and Exhibits for Contention CW-EC-3A (Environmental Justice) (Jan. 30, 2012) at 7-24.

<sup>2000</sup> Licensing Board Order (Granting in Part and Denying in Part Applicant's Motion *in Limine*) (Mar. 6, 2012) at 35 (unpublished).

<sup>2001</sup> *Id.* at 34-35.

<sup>2002</sup> Entergy's Motion in Limine to Exclude Portions of Clearwater's Rebuttal Filings on Contention CW-EC-3A (Environmental Justice) (July 30, 2012) at 1-2.

<sup>2003</sup> *Id.* at 2. Clearwater opposed this motion *in limine*. *Id.* at 18.

The Staff also filed a motion *in limine* to exclude portions of rebuttal testimony and rebuttal exhibits proffered by Clearwater.<sup>2004</sup> The Staff asserted that the evidence it sought to exclude was “not reliable, relevant, or within the scope of this proceeding.”<sup>2005</sup> The Board denied both these motions at the beginning of the Evidentiary Hearing on October 15, 2012.<sup>2006</sup>

### C. Discussion of Environmental Justice in the FSEIS

Environmental Justice is discussed primarily in sections 4.4.6 and 8.2 of the FSEIS.<sup>2007</sup> Section 4.4.6 contains the Staff’s discussion of the effects of continuing operation on the EJ population.<sup>2008</sup> Chapter 8, in part, contains the Staff’s discussion of the effects of the alternatives to license renewal on the EJ population, with section 8.2 addressing effects of shutting down the Indian Point plant.<sup>2009</sup>

According to the Staff’s witnesses, the Staff’s EJ analysis described in sections 4.4.6 and 8.2 used a three-step-analysis process:

- (1) identify[ ] the location of minority and low-income populations that may be affected by the continued operation of the nuclear power plant during the license renewal term and refurbishment activities associated with license renewal, (2) determin[e] whether there would be any potential human health or environmental effects to these populations and special pathway receptors, and (3) determin[e] if any of the effects may be disproportionately high and adverse.<sup>2010</sup>

According to Mr. Rikhoff for the NRC Staff, “[m]inority populations are identified when (1) the minority population of an affected area exceeds 50% or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.”<sup>2011</sup>

To identify the location of minority populations in the 50 miles surrounding Indian Point, the Staff used the 2000 Census Block Group data to determine the percentage of the overall population within the 50-mile radius of Indian Point

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<sup>2004</sup> NRC Staff’s Motion in Limine to Exclude Portions of Pre-Filed Rebuttal Testimony and Rebuttal Exhibits Regarding Contention CW-EC-3A (Environmental Justice) (July 30, 2012) at 1.

<sup>2005</sup> *Id.* at 2.

<sup>2006</sup> Tr. at 1265-66 (Judge McDade).

<sup>2007</sup> FSEIS at 4-49 to -55, 8-26 (Exs. NYS00133B-C); *see also* Tr. at 2741-42 (Mr. Rikhoff for the NRC Staff).

<sup>2008</sup> FSEIS at 4-49 to -55 (Ex. NYS00133B).

<sup>2009</sup> *Id.* at 8-26, 8-36 to -37, 8-59, 8-67, 8-70 (Ex. NYS00133C).

<sup>2010</sup> NRC Staff CW-EC-3A Testimony at 11-12 (Ex. NRC000063).

<sup>2011</sup> *Id.* at 13.

that is defined as minority.<sup>2012</sup> Mr. Rikhoff for the Staff indicated that the Staff used Census Block Group data instead of the more detailed Census Block data because Census Block Group data contain poverty and income data that are not contained in Census Block data.<sup>2013</sup> Mr. Rikhoff further testified that the Staff defines minority individuals as “[i]ndividuals who identify themselves [on a Census form] as members of the following population groups: Hispanic or Latino, American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, or two or more races . . .”<sup>2014</sup> Based on the Census data, Staff witness Mr. Rikhoff stated that the Staff calculated that 20.7% of the total population within 50 miles of Indian Point is black and 20.5% is Hispanic.<sup>2015</sup> In total, 48.7% of the total population within the 50-mile radius of Indian Point self-identifies as belonging to a minority group.<sup>2016</sup>

Mr. Rikhoff also testified that after calculating the overall minority population within 50 miles of the plant, and determining that the minority population is slightly less than 50%, the Staff identified Census Block Groups within the 50-mile radius that are predominantly minority (in other words, Census Block Groups that have minority populations that exceed 50%).<sup>2017</sup> The predominantly minority Census Block Groups were then designated as EJ populations for the purpose of the Staff’s NEPA review.<sup>2018</sup>

According to Mr. Rikhoff, “[l]ow-income populations in an affected area are identified with the annual statistical poverty thresholds from the Census Bureau’s Current Population Reports, Series P60, on Income and Poverty[,]” and Census Block Group data.<sup>2019</sup> He said that these data were used to identify the predominantly low-income populations within 50 miles of Indian Point that, in turn, were designated as EJ populations.<sup>2020</sup>

Mr. Rikhoff testified that since Executive Order 12898 and the Commission’s Environmental Justice Policy Statement as well as CEQ and NRC guidance documents do not designate prisoners, nursing-home patients, the mobility-impaired, or the elderly as members of the EJ population, the Staff properly did not include these groups in its EJ population for its NEPA analysis.<sup>2021</sup> Nevertheless, according to Staff witness Mr. Rikhoff, if a prisoner, nursing-home patient,

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<sup>2012</sup> See *id.* at 18-19; see also Tr. at 2748-49 (Mr. Rikhoff for the NRC Staff).

<sup>2013</sup> NRC Staff CW-EC-3A Testimony at 18 (Ex. NRC000063).

<sup>2014</sup> *Id.* at 13.

<sup>2015</sup> Tr. at 2745 (Mr. Rikhoff for the NRC Staff).

<sup>2016</sup> *Id.*

<sup>2017</sup> See Tr. at 2746 (Mr. Rikhoff for the NRC Staff).

<sup>2018</sup> See Tr. at 2748 (Mr. Rikhoff for the NRC Staff).

<sup>2019</sup> NRC Staff CW-EC-3A Testimony at 13 (Ex. NRC000063).

<sup>2020</sup> *Id.* at 18.

<sup>2021</sup> *Id.* at 20-21; see also Tr. at 2743-44 (Mr. Rikhoff for the NRC Staff).

mobility-impaired individual, or an elderly person were designated as a minority or low-income individual, he or she must be included in the EJ population for the purposes of the NRC's NEPA analysis.<sup>2022</sup> According to Mr. Rikhoff, minorities and low-income individuals in institutional facilities and inmates in correctional facilities — including detention centers, jails, and prisons (e.g., Sing Sing Prison) — were included in the EJ findings set forth in the FSEIS because such minority and low-income populations are included in Census information.<sup>2023</sup>

Rather than comparing impacts between the EJ population and the non-EJ population during the PEO, the Staff, as documented in its FSEIS, considered whether minority and low-income populations within the 50-mile radius of IPEC would experience disproportionate and adverse environmental effects during the PEO compared to those effects they experienced during the original license period.<sup>2024</sup>

According to Mr. Rikhoff, after identifying the EJ populations within the 50-mile radius of Indian Point, the Staff determined that:

[S]ocioeconomic conditions in minority and low-income populations and communities would not change as a result of renewing the IP2 and IP3 operating licenses. Employment levels and tax revenues generated by the continued operation of IP2 and IP3 would remain relatively unchanged, so direct and indirect employment opportunities and public services would remain unchanged. Therefore, there would be no additional socioeconomic impact (environmental effect) on minority and low-income populations during the license renewal term beyond what is currently being experienced.<sup>2025</sup>

He added that the Staff further determined that:

[r]adiation doses from continued operations associated with this license renewal are expected to continue at current levels, and would remain within regulatory limits. Therefore, there would be no *additional* human health impact (human health effect) on minority and low-income populations during the license renewal term beyond what is currently being experienced.<sup>2026</sup>

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<sup>2022</sup> See Tr. at 2744 (Mr. Rikhoff for the NRC Staff); NRC Staff CW-EC-3A Testimony at 21 (Ex. NRC000063).

<sup>2023</sup> NRC Staff CW-EC-3A Testimony at 21-22 (Ex. NRC000063).

<sup>2024</sup> See Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues (May 24, 2004) at 6-7, App. D, D-3 (Ex. ENT000261); Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues at 6-7, App. C, C-3 (Ex. ENT000264); *see also* Tr. 2751-52, 2476 (Mr. Rikhoff for the NRC Staff).

<sup>2025</sup> NRC Staff CW-EC-3A Testimony at 14 (Ex. NRC000063).

<sup>2026</sup> *Id.* (emphasis added).

The NRC Staff's witness testified that based on these determinations, the Staff concluded that since radiation doses from continued IP2 and IP3 reactor operations during the license renewal term were expected to continue at current levels, and would remain within regulatory limits, that "there would be no disproportionate and adverse impacts to minority and low-income populations from continued operations of IP2 and IP3 during the license renewal term."<sup>2027</sup>

Mr. Rikhoff also emphasized that, in his opinion, the NRC Staff is "not required to consider the impacts of a severe accident at Indian Point and the impacts of evacuation on special needs populations and prisoners housed in facilities located within 50 miles of IP2 and IP3 in the license renewal environmental review."<sup>2028</sup> He supported this claim by citing Table B-1 within 10 C.F.R. Part 51, which states "[t]he probability weighted consequences of atmospheric releases, fallout onto open bodies of water, releases to ground water, and societal and economic impacts from severe accidents are small for all plants."<sup>2029</sup> Thus, according to Mr. Rikhoff, the NRC Staff did "not conduct a detailed analysis of the consequences of an accident in [its] site-specific license renewal environmental reviews, because the nuclear plant is expected to operate safely during the renewal term."<sup>2030</sup>

Ms. Milligan testified that, as understood by the Staff,

Clearwater's contention assumes that a radiological emergency will occur at Indian Point, causing the onsite and offsite emergency plans to take effect. Further Clearwater also assumes that the comprehensive emergency plans both onsite and in the counties surrounding Indian Point are deficient and that emergency response personnel will be unable to fulfill their duties or take actions necessary to mitigate a possible event.<sup>2031</sup>

According to Ms. Milligan, Clearwater's assumptions are unreasonable.<sup>2032</sup> She further testified that "[t]he NRC Staff reviews existing emergency preparedness plans throughout the life of any facility, keeping up with changing demographics and other site-related factors to ensure the adequate protection of public health and safety in the very unlikely event of an accident at the Indian Point Energy Center . . .".<sup>2033</sup>

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<sup>2027</sup> *Id.* at 16-17. The Staff's witness, Mr. Rikhoff, also testified that it did not "consider any mitigation measures to reduce the environmental impacts associated with license renewal on low-income and minority populations." *Id.* at 17.

<sup>2028</sup> *Id.* at 7.

<sup>2029</sup> *Id.* (quoting 10 C.F.R. Part 51).

<sup>2030</sup> *Id.*

<sup>2031</sup> *Id.* at 7-8.

<sup>2032</sup> *Id.* at 8.

<sup>2033</sup> *Id.*

According to Ms. Milligan, if there were an accidental release of radiation from Indian Point, evacuation plans ensure that no member of the public, including those incarcerated or institutionalized, would receive more than 10 rems of radiation within a period of 4 days.<sup>2034</sup> Ms. Milligan did acknowledge, however, that were there to be an accidental radiological release from Indian Point, members of the public who cannot self-evacuate may receive a higher dose of radiation than those who can self-evacuate.<sup>2035</sup> Nevertheless, she claimed that since this higher dose would be within EPA dose guidelines, it would not be a disproportionate dose.<sup>2036</sup> Thus, according to Staff witness Ms. Milligan, this higher dose does not create an adverse or disproportionate impact on those who cannot self-evacuate.<sup>2037</sup> She further testified that, in her opinion, the members of the EJ population who cannot self-evacuate would only experience an adverse and disproportionate impact if they were subjected to a dose of radiation from a severe accident at Indian Point that was “well outside federal guidelines . . . [and] that could potentially lead to some sort of health impact.”<sup>2038</sup>

The testimony of Entergy’s witnesses echoed that of the NRC’s witnesses.<sup>2039</sup> They testified that:

Entergy, in the ER — and NRC Staff, in the FSEIS — properly identif[ied] and disclose[d] minority and low-income populations within a 50-mile radius of Indian Point using census Block Group data, consistent with NRC guidance. Because such census data specifically includes information about persons residing in institutionalized Group Quarters, as that term is defined in the census data, the populations inside correctional institutions and other facilities are inherently evaluated as part of the ER and FSEIS.<sup>2040</sup>

Entergy’s witnesses also testified that it was their view that “Clearwater’s disproportionate impact claim is contrary to NRC regulations and to the GEIS conclusion that for all plants, the probability-weighted consequences from severe accidents are small.”<sup>2041</sup> “Small” is defined in NRC regulations as environmental impacts that ‘are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.’”<sup>2042</sup> Thus, according

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<sup>2034</sup> Tr. at 2760-64 (Ms. Milligan for the NRC Staff).

<sup>2035</sup> Tr. at 2760-63 (Ms. Milligan for the NRC Staff); NRC Staff CW-EC-3A Testimony at 34-35 (Ex. NRC000063).

<sup>2036</sup> Tr. at 2762-63 (Ms. Milligan for the NRC Staff).

<sup>2037</sup> Tr. at 2762-63, 2779 (Ms. Milligan for the NRC Staff).

<sup>2038</sup> Tr. at 2779 (Ms. Milligan for the NRC Staff).

<sup>2039</sup> See generally Entergy CW-EC-3A Testimony (Ex. ENT000258).

<sup>2040</sup> *Id.* at 14-15.

<sup>2041</sup> *Id.* at 15.

<sup>2042</sup> *Id.* at 44 (citing 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1 § 3).

to Entergy's witnesses, "[t]he Commission determined by regulation that the impacts from severe accidents are SMALL for all plants, which applies to all populations. . . . Accordingly, there can be no disproportionately high and adverse impact on minority and low-income populations due to a severe accident."<sup>2043</sup>

Moreover, these three witnesses reiterated that "Indian Point, state, and local emergency plans have been demonstrated, and approved by FEMA, to provide reasonable assurance that appropriate protective measures would be taken for all members of the public in the event of a radiological emergency, including any individuals in institutions such as prisons."<sup>2044</sup>

#### **D. Clearwater's Challenge to the FSEIS**

Clearwater argued that the Staff's and Entergy's arguments "are not only incorrect, they are also immaterial."<sup>2045</sup> According to Clearwater, "[t]he most glaring flaw in the Staff's EJ analysis is that[,] after it obtained the nominal locations of the EJ populations, it did nothing to determine whether there was anything unusual about those populations."<sup>2046</sup> According to Clearwater:

specific Commission guidance requir[es] detailed assessment of the locations that result from the initial screening analysis . . . [which] includes "considering factors peculiar to those communities." For example, for the EJ populations inside prisons, the peculiar factor is that the population is incarcerated. This factor should not have been hard to identify . . . . The Staff[, however,] does not claim it identified this peculiar factor but decided it was not important, instead the Staff tacitly admits that it failed to identify *any* factors that are peculiar to *any* identified EJ population.<sup>2047</sup>

Therefore, Clearwater contends that the "Board need not adjudicate any facts or novel legal issues to find that Clearwater prevailed on its contention. [According to Clearwater, t]he issue remaining for adjudication is how much further assessment of EJ the Staff would need to do after remand to satisfy NEPA."<sup>2048</sup>

Clearwater's witnesses dedicated their testimony to different sectors of the EJ population within the 50-mile radius of Indian Point. Clearwater witness, Dr. Michael Edelstein, focused his testimony on the prison population in Sing

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<sup>2043</sup> *Id.* at 45.

<sup>2044</sup> *Id.* at 15.

<sup>2045</sup> Hudson River Sloop Clearwater, Inc. Rebuttal Statement Supporting Contention EC-3A Regarding Environmental Justice (June 28, 2012) at 1 (Ex. CLE000045).

<sup>2046</sup> *Id.*

<sup>2047</sup> *Id.* at 1-2 (citation omitted).

<sup>2048</sup> *Id.* at 2.

Sing Prison<sup>2049</sup> and the twenty-five other institutions similar to Sing Sing within the 50-mile radius of Indian Point.<sup>2050</sup> He testified that these institutionalized populations, which include a large minority and low-income population, are different from the remainder of the population within the 50-mile radius of Indian Point because those who are institutionalized lack the freedom to make their own decisions about evacuation in the event of a severe accident.<sup>2051</sup> Instead, they must trust those charged with making evacuation decisions for them.<sup>2052</sup>

Mr. Anthony Papa also focused his testimony on the EJ population incarcerated at Sing Sing prison.<sup>2053</sup> Mr. Papa, who was housed at Sing Sing for 12 years,<sup>2054</sup> testified that while at Sing Sing he was “keenly aware of Indian Point . . . [and] often worried about” whether or not he and his fellow prisoners would be evacuated in the event of a severe accident at the plant.<sup>2055</sup> He further stated that he was never informed about Sing Sing’s evacuation procedure.<sup>2056</sup> Along that same line, he testified that Sing Sing did not conduct an evacuation drill throughout the time of his 12-year incarceration.<sup>2057</sup> Moreover, Mr. Papa estimates that it would be extremely difficult to evacuate Sing Sing in a reasonable amount of time after a radiological release because the prison houses 1700 maximum security prisoners who must be shackled before being transported to another suitable facility.<sup>2058</sup>

Mr. Papa also testified that, in his estimation, Sing Sing prison is not a suitable location for prisoners to shelter-in-place.<sup>2059</sup> According to Mr. Papa, Sing Sing is an historic building that was built in 1826, with no effective ventilation system and defective windows.<sup>2060</sup> Therefore, Mr. Papa believes that the prison is not adequate for sheltering in place, and certainly is less adequate than “an average family house in Westchester.”<sup>2061</sup>

Mr. Aaron Mair testified in his capacity as a former resident of Peekskill, New York (a town within the 50-mile radius of Indian Point), with extensive EJ

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<sup>2049</sup> See generally Dr. Edelstein Testimony (Ex. CLE000003); Tr. at 2786-803 (Dr. Edelstein for Clearwater).

<sup>2050</sup> Tr. at 2794 (Dr. Edelstein for Clearwater).

<sup>2051</sup> See Tr. at 2795 (Dr. Edelstein for Clearwater).

<sup>2052</sup> *Id.*

<sup>2053</sup> See generally Anthony Papa Testimony (Ex. CLE000004).

<sup>2054</sup> *Id.* at 1.

<sup>2055</sup> *Id.*

<sup>2056</sup> *Id.* at 3.

<sup>2057</sup> *Id.*

<sup>2058</sup> *Id.*

<sup>2059</sup> *Id.* at 4.

<sup>2060</sup> *Id.*

<sup>2061</sup> *Id.*

experience.<sup>2062</sup> Mr. Mair stated that car ownership is rare among the low-income population in Peekskill and New York City (both of which are in the evacuation zone for Indian Point), which signifies that this group would be heavily reliant on public transportation to evacuate in the event of a severe accident at Indian Point, and thus could be greatly impeded in attempts to self-evacuate.<sup>2063</sup> Thus, he opined that, in his judgment, a severe accident at Indian Point would be similar to Hurricane Katrina in that “the wealthy will leave, [while] the poor, living in higher density, without transportation, will be trapped and forced to deal with the consequences.”<sup>2064</sup>

Dr. Erik Larsen testified in his capacity as a physician with experience in emergency medical response.<sup>2065</sup> Dr. Larsen asserted that low-income populations would be at a disadvantage in the event of a severe accident at Indian Point because “ambulance service will be triaged, . . . [thus] people with access to personal transportation will be better able to get to a hospital or reception center, than those who cannot afford their own vehicles.”<sup>2066</sup> He also stated that while, by law, emergency medical services must be provided to all members of the population regardless of medical-insurance coverage, health care providers can, and do, refuse follow-up care once a patient’s condition is stabilized.<sup>2067</sup> Thus, those in the low-income population surrounding Indian Point could receive disproportionate and adverse medical care in the event of injury or illness as a result of a severe accident at Indian Point.<sup>2068</sup>

Dr. Andrew Kanter testified that, in his opinion, although a severe accident is unlikely, it is reasonably foreseeable that those without the ability to self-evacuate “will be put at a higher risk of injury than those who have the ability to evacuate themselves.”<sup>2069</sup> He opined that “the consensus of the medical establishment is that there is no cutoff under which there is no risk or danger of radiation, and that there is a linear relationship of radiation [exposure] to health risk and health damage.”<sup>2070</sup>

Ms. Dolores Guardado testified as a member of the Hispanic population in

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<sup>2062</sup> Aaron Mair Testimony at 1 (Ex. CLE000007).

<sup>2063</sup> *See id.* at 8-9.

<sup>2064</sup> *Id.* at 11.

<sup>2065</sup> Dr. Larsen Testimony at 1 (Ex. CLE000005).

<sup>2066</sup> *Id.* at 3.

<sup>2067</sup> *See id.*

<sup>2068</sup> *See id.* This view was echoed by Dr. Kanter. *See* Rebuttal Testimony of Dr. Andrew S. Kanter, M.D. M.P.H. in Support of Hudson River Sloop Clearwater, Inc.’s Contention EC-3A Regarding Environmental Justice at 4-5 (Ex. CLE000048).

<sup>2069</sup> *Id.* at 2-4.

<sup>2070</sup> Tr. at 2855 (Dr. Kanter for Clearwater).

Peekskill, New York.<sup>2071</sup> She stated that she, like many members of Peekskill's Hispanic community who do not speak English fluently, is aware of Indian Point's proximity to Peekskill, but is unaware of what to do in the case of a severe accident at the plant.<sup>2072</sup> She further testified that she does not know how to obtain, much less administer, potassium iodide to herself or her family to prevent thyroid cancer in the event of radiological release from Indian Point.<sup>2073</sup>

Ms. Guardado asserted that she has not received any information from Indian Point instructing her about evacuation procedures in the event of a severe accident.<sup>2074</sup> Moreover, despite her deep involvement in the Peekskill Hispanic community, she does not know where to obtain information about evacuating in the event of a severe accident at Indian Point.<sup>2075</sup>

Ms. Guardado also noted that the language barrier is of great concern to the Spanish-speaking community.<sup>2076</sup> She fears that the Spanish-speaking community will have difficulty understanding the instructions given by emergency personnel if evacuation is required.<sup>2077</sup> Furthermore, she is concerned about the Hispanic community's reliance on public transportation.<sup>2078</sup> In the event of a severe accident at Indian Point, Ms. Guardado testified that she does not know where to find public transportation out of Peekskill.<sup>2079</sup> Moreover, she stated that she does not know if there will be enough room on the public-transportation vehicles for all of the Hispanic population that is dependent on public transportation.<sup>2080</sup> This factor, combined with the language barrier and her lack of information about evacuation procedures, according to her testimony, demonstrates concern about the safety and welfare of her family and loved ones in the event of a severe accident at Indian Point.<sup>2081</sup>

Manna Jo Greene testified in her capacity as the Environmental Director of Clearwater.<sup>2082</sup> She asserted that through internal research, Clearwater has discovered that 62% of the EJ population frequently using public transportation does not have access to a car, whereas only 15% of the non-EJ population

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<sup>2071</sup> Dolores Guardado Testimony at 1 (Ex. CLE000008).

<sup>2072</sup> See generally *id.*

<sup>2073</sup> *See id.* at 3.

<sup>2074</sup> *Id.*

<sup>2075</sup> *Id.*

<sup>2076</sup> *Id.* at 4.

<sup>2077</sup> *Id.* at 4-5.

<sup>2078</sup> *Id.* at 5.

<sup>2079</sup> *See id.*

<sup>2080</sup> *See id.*

<sup>2081</sup> *Id.*

<sup>2082</sup> Manna Jo Greene Testimony at 1 (Ex. CLE000010).

frequently using public transportation does not have access to a car.<sup>2083</sup> She also noted that even though the Head Start programs that provide early childhood education to low-income youth in the evacuation zone have emergency evacuation plans in place, not all staff members at Head Start facilities have familiarity with these procedures.<sup>2084</sup>

Ms. Greene understood that those residing in Section 8 affordable housing units for the low-income population within the evacuation zone lack adequate means to self-evacuate or administer potassium iodide in the event of a severe accident at Indian Point.<sup>2085</sup> According to Ms. Greene, the inmates housed in Rockland County Jail, a facility within the evacuation zone, do not have potassium iodide onsite despite the fact that it would take the jail 8 to 10 hours to evacuate in the event of a radiological emergency.<sup>2086</sup>

#### E. CW-EC-3A Findings

As discussed earlier, the Commission has stated that “disparate impact analysis is [the NRC’s] principal tool for advancing environmental justice under NEPA.”<sup>2087</sup> So, the threshold question before the Board is whether the Staff took a hard look at whether relicensing the Indian Point plant would produce disparate impacts on the minority and low-income populations in the 50-mile radius surrounding this plant.<sup>2088</sup> As an initial matter, the Board emphasizes once again that this is an EJ contention under NEPA, not a safety contention questioning the adequacy of Indian Point’s emergency preparedness plans. Under 10 C.F.R. § 50.47(a)(1)(i) “no finding [of reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency] is necessary for issuance of a renewed nuclear power reactor operating license.”<sup>2089</sup> Thus, the issue currently before us is not whether the emergency plan is adequate, but rather whether the Staff took a hard look under NEPA at whether relicensing Indian Point would cause disproportionate and adverse impacts on the minority and low-income populations within the 50-mile environmental impact area around

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<sup>2083</sup> *Id.* at 4.

<sup>2084</sup> *See id.* at 6-12.

<sup>2085</sup> *See id.* at 24-26.

<sup>2086</sup> *See id.* at 27-29.

<sup>2087</sup> *Claiborne*, CLI-98-3, 47 NRC at 100.

<sup>2088</sup> More specifically, Clearwater argued that Entergy and the NRC Staff did not take a hard look at whether the minority and low-income populations within a 50-mile radius of Indian Point might suffer a negative, disparate impact — in the form of exposure to a higher radiological dose than the non-EJ population within the 50-mile radius — in the event of a severe accident at Indian Point. *See* Clearwater Initial Statement of Position at 1-4 (Ex. CLER00002).

<sup>2089</sup> 10 C.F.R. § 50.47(a)(1)(i); *see also* 56 Fed. Reg. 64,943, 64,966-67 (Dec. 13, 1991).

the plant when compared to the impacts on the non-EJ population within that radius in the improbable, but not impossible, event of a severe accident at Indian Point that releases radiation into the natural environment. The simple answer is that the Staff did not take the requisite hard look at the relevant issue.

The Board finds the Staff did use a reasonable method for identifying minority and low-income populations within the 50-mile radius around Indian Point. As the Commission noted in *Pilgrim*, NEPA allows agencies “to select their own methodology as long as that methodology is reasonable.”<sup>2090</sup> Census Block Groups are the smallest census geographical units that contain both income and minority information.<sup>2091</sup> While the Census Block geographical unit is smaller than the Census Block Group, it does not contain income information.<sup>2092</sup> Thus, it was reasonable for the NRC Staff to identify minority and low-income populations (i.e., the populations that comprise the EJ population) using the smallest census geographical unit that contains both minority and income information.

While the Board finds that the Staff’s internal procedure for analyzing EJ issues is sufficient to meet its requirement under NEPA, we also find that the Staff failed to follow its own internal procedure by omitting steps 2 and 3 of its analytic process to determine the possible disproportionate and adverse effects of a severe accident at Indian Point on the EJ population.<sup>2093</sup> The Staff neglected to (1) determine whether there would be any potential human health or environmental effects to the minority and low-income populations in the event of an accident that caused a radiological release from Indian Point, and (2) determine if any of the effects may be disproportionate and adverse when compared to the health and environmental effects to the general population.<sup>2094</sup>

More specifically, the Staff failed to: (1) determine whether the EJ population would suffer disproportionate and adverse effects during the PEO from relicensing Indian Point in comparison to those effects that the non-EJ population would experience during the PEO,<sup>2095</sup> and (2) determine if the members of the low-income population who cannot afford to, or do not have the freedom to, self-evacuate

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<sup>2090</sup> *Pilgrim*, CLI-10-11, 71 NRC at 316 (quoting *Town of Winthrop*, 535 F.3d at 11-13).

<sup>2091</sup> See NRC Staff CW-EC-3A Testimony at 18 (Ex. NRC000063).

<sup>2092</sup> *See id.*

<sup>2093</sup> See Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues (May 24, 2004) (Ex. ENT000261) (explaining the three-step analytic process used to determine the possible disproportionate and adverse effects of a severe accident at Indian Point on the EJ population).

<sup>2094</sup> *See id.*

<sup>2095</sup> There was no EJ analysis completed before issuance of the original Indian Point operating licenses. *See id.* at 6-7, App. D, D-3; Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues at 6-7, App. C, C-3 (Ex. ENT000264). Accordingly, no comparison of the impacts of relicensing on the EJ population versus the impact on non-EJ populations was ever conducted by the NRC Staff.

or effectively shelter-in-place due to substandard housing would be disparately and adversely impacted in comparison to those who have the freedom, financial means, and readily available modes of transportation to self-evacuate or access adequate shelter.

In regard to the first item, we find that the Staff analyzed the wrong variables by comparing impacts of the EJ population during the PEO to the current impacts to this same group. The correct analysis would assess the effects of the PEO on the EJ population and non-EJ populations to ascertain any disparate impacts.

Relating to the second item, Staff Witness Ms. Milligan testified that “it is possible that special populations, such as those at Sing Sing[,] could receive radiation doses higher than other populations that are immediately able to self-evacuate[ . . . ].”<sup>2096</sup> In the next breath Ms. Milligan stated that she, on behalf of the NRC, does not “specifically look at EJ populations in the context of emergency preparedness because . . . [the NRC prepares] for all populations, not just EJ populations.”<sup>2097</sup>

The Board finds that this type of total population analysis without a specific EJ population analysis defeats the purpose of EJ analyses under NEPA. As the Commission made clear in *Louisiana Energy Services*, “[d]isparate impact analysis is [the NRC’s] principal tool for advancing environmental justice under NEPA. The NRC’s goal is to identify and adequately weigh, or mitigate, effects on low-income and minority communities that become apparent only by considering factors peculiar to those communities.”<sup>2098</sup> By failing to consider factors peculiar to the EJ community in the event of an accident, the Board finds that the Staff failed to identify and adequately weigh effects on low-income and minority communities surrounding Indian Point. Thus, we find that the Staff failed to take a reasonably hard look at environmental effects of relicensing Indian Point on the EJ population, and thus has failed to comply with its EJ obligations under NEPA.

Staff witness Mr. Rikhoff testified that the Staff did not evaluate the effects of a severe accident on the EJ population because Table B-1 within 10 C.F.R. Part 51 “concludes that the probability of a severe accident is small . . . ”<sup>2099</sup> Based on this finding the Staff summarily concluded, without analysis, that since the probability-weighted consequences of a severe accident are small for all populations, including the EJ population, there is no disproportionate and adverse impact on minority and low-income populations due to a severe accident.<sup>2100</sup> However, “[o]nly if the harm in question is so ‘remote and speculative’ as

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<sup>2096</sup> Tr. at 2760-61 (Ms. Milligan for the NRC Staff).

<sup>2097</sup> *Id.*

<sup>2098</sup> *Claiborne*, CLI-98-3, 47 NRC at 100.

<sup>2099</sup> Tr. at 2757 (Mr. Rikhoff for the NRC Staff).

<sup>2100</sup> See *id.* at 2756-58; NRC Staff CW-EC-3A Testimony at 17 (Ex. NRC000063) (referencing FSEIS, ch. 5 (Ex. NYS00133B)).

to reduce the effective probability of its occurrence to zero may the agency dispense with the consequences portion of the analysis.”<sup>2101</sup> Here, Staff witness Mr. Rikhoff admitted it is possible that minority or low-income populations could be disproportionately affected in the event of a severe accident at Indian Point despite the fact that the probability-weighted consequences of an accident are small.<sup>2102</sup> Entergy provided similar testimony.<sup>2103</sup>

While a regulation states that the probability-weighted consequences of a severe accident at Indian Point are small,<sup>2104</sup> Staff witness Mr. Rikhoff conceded that there is no regulation exempting the Staff from considering the effects of a severe accident on the EJ population.<sup>2105</sup> Thus, the Board finds that there is no legal foundation for the Staff’s failure to analyze the possible disproportionate and adverse impacts of a severe accident at Indian Point on the EJ population within the 50-mile radius of the plant.

The Board also notes that regulations, such as 10 C.F.R. § 50.47(a)(1)(i), require nuclear power reactors to have emergency plans in place to respond to accidents despite the fact that Table B-1 within 10 C.F.R. Part 51 concludes that the environmental impacts of both design basis and severe accidents at a nuclear reactor are small for all plants. This is a clear indication that the NRC, while cautiously optimistic that a potentially severe accident will not occur at a licensed nuclear reactor, believes it necessary to prepare for just such a possibility. Thus, it escapes logic that the NRC would use this finding — that the probability-weighted consequences of a severe accident at a nuclear reactor are small — as the basis to exempt itself from evaluating the possible disproportionate and adverse effects of a severe accident on the EJ population. Also, to accept this position would run counter to the NRC requirements that nuclear reactor licensees create plans and devote resources to protecting the public from the consequences of a severe accident. Therefore, the Board finds that the Staff’s lack of EJ analysis regarding the possible disproportionate and adverse effects of an accident at Indian Point on the EJ population within the 50-mile radius of Indian Point fails to meet the NEPA reasonableness standard.

#### F. Resolution of CW-EC-3A

In accordance with the Commission’s holding in *Louisiana Energy Services*, the Staff is not necessarily required to amend or supplement its FSEIS despite our

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<sup>2101</sup> *New York v. NRC*, 681 F.3d 471, 482 (D.C. Cir. 2012) (citing *Limerick Ecology Action*, 869 F.2d at 739).

<sup>2102</sup> See Tr. at 2757-58 (Mr. Rikhoff for the NRC Staff).

<sup>2103</sup> Entergy CW-EC-3A Testimony at 15 (Ex. ENT000258).

<sup>2104</sup> 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1.

<sup>2105</sup> See Tr. at 2758 (Mr. Rikhoff for the NRC Staff).

finding that the EJ sections are insufficient. Instead, our review of the EJ issue herein, through analysis of the written testimony and the testimony garnered at the evidentiary hearing, can remedy the deficiencies in the FSEIS.<sup>2106</sup>

As presented above, Clearwater's witnesses dedicated their testimony to different sectors of the EJ population within the 50-mile radius of Indian Point. From this, we conclude that while the risk to both the EJ and non-EJ population is small, the higher risk to the EJ population should be discussed in an adequate EJ analysis.

While the Staff had not done this in its FSEIS, the Board finds the testimony provided by Clearwater's witnesses sufficiently illustrated the potentially disproportionate and adverse impacts on the EJ population surrounding Indian Point in the event of a severe accident. As a result, there has been informed public participation and adequate analysis to foster informed decisionmaking, thus ensuring that the agency has met its NEPA requirements and will not act upon incomplete information.

In summary, Clearwater's witnesses did a thorough job of revealing the EJ population's concerns about relicensing Indian Point and the potential disproportionate and adverse impact this population may experience, in comparison to the non-EJ population, were there to be an accident at Indian Point. Thus, the record now contains evidence of informed public participation and adequate analysis to foster informed decisionmaking. Therefore, the NRC, despite the inadequate FSEIS, has met its NEPA burden with regard to the issues raised in CW-EC-3A.

## G. Conclusions of Law

In summary, the FSEIS was flawed because the Staff did not analyze the correct variables. Even though no EJ analysis was conducted at the time IP2 and IP3 were originally licensed, the Staff concluded the impact of continued operation of these reactors would be the same during the proposed period of extended operation as it had been during the initial license period. Even if true, this conclusion is irrelevant to the proper EJ analysis for license renewal. The federal action at issue here is the proposed relicensing of IP2 and IP3. Accordingly, what the Staff should have compared in its EJ analysis is the impact of extended operation on the EJ population against the impact of continued operation on the non-EJ population.

During the hearing Clearwater had the opportunity to, and in fact did, demonstrate how the ability of EJ populations near Indian Point to evacuate or shelter-in-place in the event of an accident differed from that of the non-EJ populations. Furthermore, the Board has now addressed these differences so that the ultimate

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<sup>2106</sup> *Claiborne*, CLI-98-3, 47 NRC at 89; *see also National Enrichment Facility*, LBP-06-8, 63 NRC at 260; *Hydro Resources, Inc.*, LBP-06-19, 64 NRC at 69 n.11.

decisionmaker regarding the relicensing of Indian Point can now make a properly informed decision. Accordingly, the hard look at the EJ aspects of relicensing having been taken, the Commission, without additional Staff action, can now with respect to the EJ issue, make an informed decision whether to grant the requested license.<sup>2107</sup>

## XII. CONCLUSION AND ORDER

The Board has marked for identification the most recent version of each party's exhibit list (*i.e.*, Exs. ENTR14001, NRCR80001, CLER70001, NYSR22001, and RIVR11001) and strikes all earlier admitted versions of these lists. Having done so, we close the record for the Track 1 contentions. We again note that not all of the exhibits that have been listed by the parties have been admitted, and note that Appendix B to this Partial Initial Decision lists all admitted exhibits that have been considered by the Board in resolving the Track 1 contentions.

Based on our review of the evidentiary record in this proceeding, the Board concludes that, with regard to the issues raised in contentions RK-TC-2, NYS-5, and NYS-6/7, Entergy has demonstrated that the effects of aging will be adequately managed during the PEO as required by 10 C.F.R. § 54.21(a)(3). The Board also concludes that, with regard to the issues raised in contentions NYS-12C, NYS-16B, NYS-17B, NYS-37, and CW-EC-3A, the NRC Staff has demonstrated that the Staff's FEIS complies with NEPA and with 10 C.F.R. Part 51. In regard to NYS-8, because we find transformers to be "passive" components, transformers fall with the scope of 10 C.F.R. Part 54 and must undergo AMR pursuant to 10 C.F.R. § 54.21(a)(1). Therefore, Entergy has not demonstrated that it will adequately manage the effects of aging on the relevant components as required by 10 C.F.R. § 54.21(a)(3). Accordingly, NYS-8 is resolved in favor of New York.

This Partial Initial Decision shall constitute the final decision of the Commission, unless, within twenty-five (25) days of its service, a petition for review is

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<sup>2107</sup> *Limerick*, ALAB-819, 22 NRC 681; *National Enrichment Facility*, LBP-06-8, 63 NRC at 260. Having found that the NRC Staff compared the wrong variable in its EJ analysis (*i.e.*, impact on the EJ population during the initial licensing period versus the impact on the EJ population during the proposed period of extended operation as opposed to the impact during the period of extended operation on the general population) the Board considered returning this issue to the NRC Staff so that it could amend the FSEIS. Nevertheless, after reviewing the record as developed during the hearing, we conclude that disparate impact on the EJ population has been analyzed and, following the reasoning articulated in *Claiborne*, CLI-98-3, 47 NRC 77, *Limerick*, ALAB-819, 22 NRC 681, and *Hydro Resources*, LBP-06-19, 64 NRC 53, we believe that, based on the record of this proceeding, the Commission and the public have been presented with the relevant EJ facts so that an informed decision can be made.

filed in accordance with 10 C.F.R. §§ 2.1212 and 2.341(b).<sup>2108</sup> Filing a petition for review is mandatory for a party to exhaust its administrative remedies before seeking judicial review.<sup>2109</sup>

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Lawrence G. McDade, Chairman  
ADMINISTRATIVE JUDGE

Dr. Richard E. Wardwell  
ADMINISTRATIVE JUDGE

Dr. Michael F. Kennedy  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
November 27, 2013

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<sup>2108</sup> The time to file a petition for review under 10 C.F.R. § 2.341(b) was recently extended from fifteen (15) days to twenty-five (25) days. Final Rule: “Amendments to Adjudicatory Process Rules and Related Requirements,” 77 Fed. Reg. 46,561, 46,596 (Aug. 3, 2012).

<sup>2109</sup> 10 C.F.R. § 2.341(b)(1).

**APPENDIX A**  
**(Summary of Admitted Contentions and Contentions Held in Abeyance)**

<b>Contention(s)</b>	<b>Date Admitted</b>	<b>Status/Disposition of Contention(s)</b>
NYS-5: LRA deficient because it lacks adequate AMP for buried pipes and tanks that contain radioactive fluid.	07/31/08	Litigated during the Track 1 evidentiary hearing. Resolved in favor of Entergy. Entergy's AMP for buried pipes meets the requirements of 10 C.F.R. §§ 54.21(a)(3) and 54.29(a).
NYS-6/7: LRA deficient because it lacks AMP for non-EQ inaccessible medium- and low-voltage cables.	07/31/08	Litigated during the Track 1 evidentiary hearing. Resolved in favor of Entergy. Entergy's AMP for non-EQ inaccessible medium- and low-voltage cables meets the requirements of 10 C.F.R. §§ 54.21(a)(3) and 54.29(a).
NYS-8: LRA deficient because it lacks AMP for certain electrical transformers.	07/31/08	Litigated during the Track 1 evidentiary hearing. Resolved in favor of New York. As a passive component with no moving parts and no change in configuration, properties, or state, transformers must undergo AMR pursuant to 10 C.F.R. § 54.21(a)(1). Renewed licenses cannot be issued unless and until this deficiency is corrected.
NYS-9: LRA deficient because it fails to evaluate energy conservation as an alternative that could displace the energy production of IPEC.	07/31/08	Consolidated w/NYS-33/37. See Licensing Board Order (Ruling on Pending Motions for Leave to File New and Amended Contentions) (July 6, 2011) (unpublished).
NYS-12C: LRA deficient because the Applicant's SAMA analysis underestimates the clean-up costs associated with severe accidents.	07/06/11	Litigated during the Track 1 evidentiary hearing. Resolved in favor of the NRC Staff. Entergy's SAMA analysis is sufficiently site specific and Entergy's use of and the NRC's approval of the TIMDEC and CDNFRM values was reasonable and satisfies the requirements under NEPA and 10 C.F.R. § 51.53(c)(3)(ii)(L).

<b>Contention(s)</b>	<b>Date Admitted</b>	<b>Status/Disposition of Contention(s)</b>
NYS-16B: LRA deficient because the Applicant's SAMA analysis includes defective population projections.	06/30/10	Litigated during the Track 1 evidentiary hearing. Resolved in favor of the NRC Staff. Entergy's estimate and the NRC's approval of the projected population are reasonable and satisfy the requirements under NEPA and 10 C.F.R. § 51.53(c)(3)(ii)(L).
NYS-17B: LRA deficient because it fails to address the impact of IPEC's continued operation on off-site land use, including real estate values.	07/06/11	Litigated during the Track 1 evidentiary hearing. Resolved in favor of the NRC Staff. The NRC Staff's approach to weighing the costs and benefits of plant shutdown on property values and the local community was reasonable and satisfies the requirements of NEPA and 10 C.F.R. § 51.95.
NYS-24: LRA deficient because Applicant has not conducted enhanced inspections to assess the integrity of the containment structures.	07/31/08	Contention settled in January 2012. <i>See</i> Licensing Board Order (Approving Settlement of Contention NYS-24) (Jan. 26, 2012) (unpublished).
NYS-25: LRA deficient because it fails to include an adequate AMP for embrittlement of the reactor pressure vessels and the associated internals.	07/06/11	Currently pending, scheduled to be litigated during Track 2 evidentiary hearing.
NYS-26B: LRA deficient because it fails to include an adequate AMP for metal fatigue on key reactor components. Consolidated for hearing with RK-TC-1B.  LBP-08-13, 68 NRC 43 (2008).	11/04/10	Currently pending, scheduled to be litigated during Track 2 evidentiary hearing.
NYS-33: LRA deficient because it fails to evaluate energy conservation as an alternative that could displace the energy production of IPEC.	06/16/09	Consolidated with NYS-9/37. <i>See</i> Licensing Board Order (Ruling on Pending Motions for Leave to File New and Amended Contentions) (July 6, 2011) (unpublished).

<b>Contention(s)</b>	<b>Date Admitted</b>	<b>Status/Disposition of Contention(s)</b>
NYS-35/36: The NRC Staff failed to require completion of cost analyses for the SAMAs that appear to be cost beneficial and to require Entergy either to implement mitigation alternatives when the benefits of those alternatives substantially outweigh costs or, in the alternative, to explain with a rational basis why the NRC Staff would allow Entergy's licenses to be renewed without the implementation of the cost-beneficial SAMAs.	06/30/10	Summary disposition granted in favor of New York. <i>See</i> LBP-11-17. The FSEIS does not articulate a rational basis for not requiring Entergy to complete its SAMA review and for not requiring the implementation of cost-beneficial SAMAs prior to the relicensing of IP2 and IP3 and, therefore, violates NRC regulations, NEPA, and the APA. Renewed licenses cannot be issued unless and until this deficiency is corrected.
NYS-37: LRA deficient because it fails to provide a meaningful analysis of energy alternatives.	07/06/11	Litigated during the Track 1 evidentiary hearing. Resolved in favor of the NRC Staff. The NRC Staff fulfilled its responsibilities under NEPA and 10 C.F.R. § 51.91(a)(1) by reasonably responding to New York's comments to the DSEIS regarding the no-action alternative.
NYS-38: LRA deficient because Applicant fails to demonstrate that it has a program that will manage the effects of aging of several critical components or systems. Consolidated for hearing with RK-TC-5. LBP-08-13, 68 NRC 43 (2008).	11/10/11	Currently pending, scheduled to be litigated during Track 2 evidentiary hearing.
NYS-39: FSEIS deficient because it does not include an analysis of the environmental impacts caused by the storage of nuclear waste at IPEC following the license renewal period nor an analysis of alternatives to proposed storage of spent fuel at IPEC in spent fuel pools.	N/A	Contention was held in abeyance at the direction of the Commission. <i>See</i> Licensing Board Order (Holding Contentions NYS-39/RK-EC-9/CW-EC-10 and CW-SC-4 in Abeyance) (Aug. 8, 2012) (unpublished) (citing <i>Calvert Cliffs</i> , CLI-12-16, 76 NRC at 68-69).

<b>Contention(s)</b>	<b>Date Admitted</b>	<b>Status/Disposition of Contention(s)</b>
<i>RK-TC-1B:</i> LRA deficient because it fails to include an adequate AMP for metal fatigue on key reactor components. Consolidated for hearing with NYS-26B. LBP-08-13, 68 NRC 43 (2008).	11/04/10	Currently pending, scheduled to be litigated during Track 2 evidentiary hearing.
<i>RK-TC-2:</i> LRA deficient because it lacks adequate AMP for flow-accelerated corrosion.	07/31/08	Litigated during the Track 1 evidentiary hearing. Resolved in favor of Entergy. Entergy's AMP for flow-accelerated corrosion meets the requirements of 10 C.F.R. §§ 54.21(a)(3) and 54.29(a).
<i>RK-TC-5:</i> LRA deficient because Applicant fails to demonstrate that it has a program that will manage the effects of aging of several critical components or systems. Consolidated for hearing with NYS-38. LBP-08-13, 68 NRC 43 (2008).	11/10/11	Currently pending, scheduled to be litigated during Track 2 evidentiary hearing.
<i>RK-EC-3A:</i> LRA deficient because it does not adequately assess new and significant information regarding the environmental impacts of the radioactive water leaks from spent fuel pools.	07/06/11	Contention settled in October 2012. <i>See</i> Licensing Board Order (Approving Settlement of Consolidated Contention Riverkeeper EC-3 and Clearwater EC-1) (Oct. 17, 2012) (unpublished).
<i>RK-EC-8:</i> FSEIS deficient because it does not include or consider the assessment of the National Marine Fisheries Service regarding impacts to endangered species due to incomplete Endangered Species Act consultation.	07/06/11	Currently pending, scheduled to be litigated during Track 2 evidentiary hearing. Motion by Riverkeeper to amend this contention is pending; Motion by Entergy to dismiss this contention is pending.
<i>RK-EC-9:</i> FSEIS deficient because it does not now include an analysis of the environmental impacts caused by the storage of nuclear waste at IPEC following the end of the requested operating licenses nor an analysis of	N/A	Contention was held in abeyance at the direction of the Commission. <i>See</i> Licensing Board Order (Holding Contentions NYS-39/RK-EC-9/CW-EC-10 and CW-SC-4 in Abeyance) (Aug. 8, 2012) (unpublished)

<b>Contention(s)</b>	<b>Date Admitted</b>	<b>Status/Disposition of Contention(s)</b>
alternatives to proposed storage of spent fuel at Indian Point for an indefinite period of time in spent fuel pools.		(citing <i>Calvert Cliffs</i> , CLI-12-16, 76 NRC at 68-69).
<i>CW-EC-IA</i> : LRA deficient because it does not adequately assess new and significant information regarding the environmental impacts of the radioactive water leaks from spent fuel pools.	07/06/11	Contention settled in October 2012. <i>See Licensing Board Order (Approving Settlement of Consolidated Contention Riverkeeper EC-3 and Clearwater EC-1)</i> (Oct. 17, 2012) (unpublished).
<i>CW-EC-3A</i> : FSEIS deficient because it contains flawed environmental justice analysis.	07/06/11	Litigated during the Track 1 evidentiary hearing. Resolved in favor of the NRC Staff. Despite the NRC Staff's failure to analyze the proper variables regarding environmental justice, given the information put forth at the evidentiary hearing, the hard look at the environmental justice aspects of relicensing have been taken.
<i>CW-EC-10</i> : FSEIS deficient because it does not now include an analysis of the environmental impacts caused by the storage of nuclear waste at IPEC following the end of the requested operating licenses nor an analysis of alternatives to proposed storage of spent fuel at Indian Point for an indefinite period of time in spent fuel pools.	N/A	Contention was held in abeyance at the direction of the Commission. <i>See Licensing Board Order (Holding Contentions NYS-39/RK-EC-9/CW-EC-10 and CW-SC-4 in Abeyance)</i> (Aug. 8, 2012) (unpublished) (citing <i>Calvert Cliffs</i> , CLI-12-16, 76 NRC at 68-69).
<i>CW-SC-4</i> : LRA deficient because it provides insufficient analysis of the aging management of the spent fuel pools that could be used to store waste onsite in the long term.	N/A	Contention was held in abeyance at the direction of the Commission. <i>See Licensing Board Order (Holding Contentions NYS-39/RK-EC-9/CW-EC-10 and CW-SC-4 in Abeyance)</i> (Aug. 8, 2012) (unpublished) (citing <i>Calvert Cliffs</i> , CLI-12-16, 76 NRC at 68-69).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Allison M. Macfarlane**, Chairman  
**Kristine L. Svinicki**  
**George Apostolakis**  
**William D. Magwood, IV**  
**William C. Ostendorff**

**In the Matter of**

**Docket Nos. 50-361-CAL  
50-362-CAL**

**SOUTHERN CALIFORNIA EDISON  
COMPANY**  
**(San Onofre Nuclear Generating  
Station, Units 2 and 3)**

**December 5, 2013**

**AMICUS PLEADINGS**

Section 2.315(d) provides for the filing of amicus curiae briefs when the Commission has taken up a matter pursuant to section 2.341 or *sua sponte*.

**MOOTNESS**

Generally, a case will be moot when the issues are no longer “live,” or the parties lack a cognizable interest in the outcome.

**MOOTNESS**

While the same legal question may arise in a future proceeding with different litigants, it is appropriate for the Commission to wait and decide it in the context of a concrete dispute, with self-interested parties vigorously advocating opposing positions.

## **MOOTNESS**

The Commission has recognized an exception to the mootness doctrine, where a case may not be moot if it is capable of repetition, yet evading review: i.e., if the challenged action were too short in duration to be litigated and there is a reasonable expectation that the same party will be subjected to the same action again.

## **LICENSING BOARD DECISIONS: PRECEDENTIAL EFFECT**

Unreviewed board decisions do not create binding legal precedent.

## **VACATUR**

The Commission will vacate unreviewed board decisions as a prudential matter when appellate review is cut short by mootness.

## **VACATUR**

When vacating for mootness, the Commission neither approves nor disapproves the underlying board ruling.

## **LICENSING BOARD DECISIONS: PRECEDENTIAL EFFECT**

Future litigants can cite a vacated board decision as support for an argument; the Commission or a licensing board then may consider whether such an argument is persuasive.

## **MEMORANDUM AND ORDER**

The NRC Staff requests that we vacate the Atomic Safety and Licensing Board's order, LBP-13-7, which resolved issues we referred to the Panel for consideration in this matter late last year.<sup>1</sup> As discussed more fully below, this proceeding became moot while LBP-13-7 was still subject to a potential appeal. Therefore, in keeping with our established and customary practice, we grant the Staff's motion and vacate LBP-13-7.

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<sup>1</sup> LBP-13-7, 77 NRC 307 (2013). See CLI-12-20, 76 NRC 437 (2012).

## I. BACKGROUND

### A. Events at San Onofre

San Onofre Nuclear Generating Station Units 2 and 3 have been offline since a steam generator tube leak led to the rapid shutdown of Unit 3 in January 2012. The Licensee, Southern California Edison Company, provided to the NRC in March of that year a description of the actions it committed to take with respect to the steam generator tube issues.<sup>2</sup> In response, the Staff issued a “Confirmatory Action Letter” (CAL) to Southern California Edison; the CAL confirmed Edison’s commitments, and identified several actions to be taken prior to restarting the reactors.<sup>3</sup> As relevant here, Southern California Edison, as part of its proposal for the restart of Unit 2, submitted in April 2013 a request to revise the Unit 2 license and the associated technical specification requirements for steam generator tube integrity, in order to restrict temporarily Unit 2 operation to no more than 70% of rated thermal power.<sup>4</sup>

On June 7, 2013, Southern California Edison informed the Staff of its determination not to seek restart of San Onofre Units 2 and 3,<sup>5</sup> and shortly thereafter certified to the NRC that it has permanently ceased power operation of both units.<sup>6</sup> Southern California Edison also withdrew its April 2013 license amend-

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<sup>2</sup>See Dietrich, Peter T., Southern California Edison, Letter to Elmo E. Collins, NRC, Steam Generator Return-to-Service Action Plan, San Onofre Nuclear Generating Station (Mar. 23, 2012) (ADAMS Accession No. ML12086A182) (Unit 2 Return to Service Plan).

<sup>3</sup>See Collins, Elmo E., Regional Administrator, Region IV, US NRC, letter to Peter T. Dietrich, Senior Vice President and Chief Nuclear Officer, Southern California Edison, Confirmatory Action Letter — San Onofre Nuclear Generating Station, Units 2 and 3, Commitments to Address Steam Generator Tube Degradation (Mar. 27, 2012) (ADAMS Accession No. ML12087A323).

<sup>4</sup>See Dietrich, Peter T., Southern California Edison, Letter to NRC Document Control Desk, Amendment Application Number 263 (Apr. 5, 2013) (ADAMS Accession No. ML13098A043); Bauder, Douglas R., Southern California Edison, Letter to NRC Document Control Desk, Supplement 1 to Amendment Application Number 263 (Apr. 9, 2013) (ADAMS Accession No. ML13100A021); Application and Amendment to Facility Operating License Involving Proposed No Significant Hazards Consideration Determination; San Onofre Nuclear Generating Station, Unit 2, 78 Fed. Reg. 22,576, 22,576 (Apr. 16, 2013).

<sup>5</sup>See Affidavit of Mr. Michael R. Johnson Concerning [Southern California Edison]’s Decision to Retire SONGS Units 2 and 3 (June 14, 2013), appended to NRC Staff’s Motion to Vacate the Atomic Safety and Licensing Board’s Full Initial Decision, LBP-13-07 (June 14, 2013) (Staff Motion to Vacate).

<sup>6</sup>Dietrich, Peter T., Southern California Edison, Letter to NRC Document Control Desk, Certification of Permanent Cessation of Power Operations (June 12, 2013) (ADAMS Accession No. ML131640201).

ment request.<sup>7</sup> Edison has since permanently defueled the reactors, and the Staff has closed out the CAL.<sup>8</sup>

## B. Procedural History

This adjudication has unfolded in parallel with the activities discussed above. Shortly after the Staff issued the CAL, Friends of the Earth submitted a petition to intervene, in which it sought a hearing on the restart of both units, and a stay of any decision to authorize restart pending the conclusion of the requested hearing.<sup>9</sup> Friends of the Earth maintained, among other things, that Southern California Edison's replacement of its steam generators in 2010 and 2011 pursuant to 10 C.F.R. § 50.59, without first obtaining NRC approval via a license amendment, was unlawful, and that the CAL and the process for resolving the CAL constituted a *de facto* license amendment.<sup>10</sup>

In CLI-12-20, we referred Friends of the Earth's section 50.59 claim regarding the replacement of the Unit 2 and 3 steam generators to the Executive Director for Operations for appropriate action under 10 C.F.R. § 2.206, and referred Friends of the Earth's *de facto* license amendment claim to the Atomic Safety and Licensing Board Panel. The referral directed the Panel to consider "whether: (1) the Confirmatory Action Letter issued to [Southern California Edison] constitutes a

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<sup>7</sup> Application and Amendment to Facility Operating License Involving Proposed No Significant Hazards Consideration Determination; San Onofre Nuclear Generating Station, Unit 2, 78 Fed. Reg. 37,594, 37,595 (June 21, 2013).

<sup>8</sup> See Dietrich, Peter T., Southern California Edison, Letter to NRC Document Control Desk, Permanent Removal of Fuel from the Reactor Vessel (July 22, 2013) (ADAMS Accession No. ML13204A304) (Unit 2); Dietrich, Peter T., Southern California Edison, Letter to NRC Document Control Desk, Permanent Removal of Fuel from the Reactor Vessel (June 28, 2013) (ADAMS Accession No. ML13183A391) (Unit 3); Howell, Arthur T., III, NRC, Letter to Peter Dietrich, Closure of Confirmatory Action Letter — San Onofre Nuclear Generating Station, Units 2 and 3, Commitments to Address Steam Generator Tube Degradation (Aug. 1, 2013) (ADAMS Accession No. ML13213A238).

<sup>9</sup> Petition to Intervene and Request for Hearing by Friends of the Earth (June 18, 2012) (Friends of the Earth Petition); Application to Stay Any Decision to Restart Units 2 or 3 at the San Onofre Nuclear Generating Station Pending Conclusion of the Proceedings Regarding Consideration of the Safety of the Replacement Steam Generators (June 18, 2012). The Natural Resources Defense Council (NRDC) supported Friends of the Earth's hearing request. Natural Resources Defense Council's (NRDC) Response in Support of Friends of the Earth Petition to Intervene and NRDC's Notice of Intent to Participate (June 27, 2012).

<sup>10</sup> Friends of the Earth Petition at 2, 16-18. See also Dietrich, Peter T., Southern California Edison, Letter to Elmo E. Collins, NRC, Confirmatory Action Letter — Actions to Address Steam Generator Tube Degradation, San Onofre Nuclear Generating Station, Unit 2 (Oct. 3, 2012), Enclosure 2 at 10 (ADAMS Accession No. ML12285A263) (stating that new steam generators were placed into service at Units 2 and 3 in 2010 and 2011, respectively).

*de facto* license amendment that would be subject to a hearing opportunity under section 189a [of the Atomic Energy Act]; and, if so, (2) whether the petition meets the standing and contention admissibility requirements of 10 C.F.R. § 2.309.”<sup>11</sup>

The Board issued its final initial decision on the matter, LBP-13-7, on May 13, 2013. Among other things, the Board held that the CAL process between the Staff and Southern California Edison — in particular Edison’s Unit 2 Return to Service Plan and the Staff’s potential future authorization of that plan — constituted a *de facto* license amendment proceeding.<sup>12</sup> Thereafter, Friends of the Earth submitted a motion to convene a licensing board and to consolidate the April 5 license amendment matter with this one.<sup>13</sup>

As noted above, on June 7, the day petitions for review of LBP-13-7 were due, Southern California Edison notified the Staff that it would not seek to restart the plant.<sup>14</sup> In response, the Staff sought, and was granted, an extension of time to file a petition for review of LBP-13-7 to determine an appropriate course of action in light of Edison’s decision to retire the plant.<sup>15</sup> The Staff did not file a petition for review; however, it did file the instant motion to vacate the Board’s decision. Friends of the Earth and NRDC oppose the Staff’s motion.<sup>16</sup> And the

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<sup>11</sup> CLI-12-20, 76 NRC at 440-41. We also denied Friends of the Earth’s request to initiate a discretionary hearing. *Id.* at 441.

<sup>12</sup> See, e.g., LBP-13-7, 77 NRC at 326-28, 334, 338. Because the Board granted Friends of the Earth’s requested relief (that is, a ruling that a license amendment and hearing opportunity were required), it also terminated the proceeding. *Id.* at 316.

<sup>13</sup> Motion by Friends of the Earth and the Natural Resources Defense Council Requesting the Nuclear Regulatory Commission to Convene an Atomic Safety and Licensing Board and Consolidate the License Amendment Proceedings for the San Onofre Nuclear Generating Station (May 23, 2013) (Motion to Consolidate). Because Southern California Edison has withdrawn its license amendment request, we dismiss the Motion to Consolidate as moot.

On a related note, after Southern California Edison’s announcement that it would permanently cease operation of San Onofre, Friends of the Earth requested that the NRC either “withdraw its proposed approval” of the license amendment request, or toll indefinitely the deadline for submitting hearing requests in that matter. See Ayres, Richard, Counsel for Friends of the Earth, Letter to Chairman Macfarlane (June 11, 2013), at 1 (ADAMS Accession No. ML13164A327). In response, the Secretary tolled the running of the time for the filing of such requests. Order (Tolling the Running of the Time to File an Intervention Petition) (June 14, 2013) (unpublished). At that time, Southern California Edison had sought withdrawal of its license amendment request, but the Staff had not yet acted on the withdrawal. Now that the license amendment application is officially withdrawn, we clarify that no hearing request associated with that application will be accepted by the NRC.

<sup>14</sup> See NRC Staff Motion for Extension of Time to File Petition for Review (June 7, 2013) at 1.

<sup>15</sup> Id.; Order (Granting Extension of Time) (June 7, 2013) (unpublished).

<sup>16</sup> Joint Answer by Friends of the Earth and the Natural Resources Defense Council to Staff’s Motion to Vacate LBP-13-07 (June 24, 2013) (Joint Answer). While the Board did not formally rule on NRDC’s status in this case, NRDC participated before the Board as amicus curiae. See, e.g., Order (Conference Call Summary and Directives Relating to Briefing) (Dec. 7, 2012) at 1 n.1, 4 n.7

(Continued)

States of New York and Vermont jointly seek leave to file an *amici curiae* brief in opposition to the Staff's motion.<sup>17</sup>

As discussed further below, we grant the Staff's request, and vacate the Board's decision, in line with our usual practice.

## II. DISCUSSION

The Board's decision pertained, as a general matter, to the San Onofre Unit 2 restart, including the Staff's potential future authorization of the Unit 2 Return to Service Plan. In view of Southern California Edison's decision to permanently retire Units 2 and 3, the Staff has ceased review of Edison's Unit 2 Return to Service Plan.<sup>18</sup> These developments have led to the end of this adjudication. The issue before us today is whether, given the circumstances presented, vacatur of the Board's decision is appropriate. We discuss in turn Friends of the Earth's "mootness" argument and the reasons for our prudential decision to vacate LBP-13-7.

Friends of the Earth frames the dispute as a question of mootness, arguing that the Board's decision is not moot because it contains "broader legal propositions clarified by the Board that apply beyond this particular case" and "serves as important guidance for the Commission," and that, as a result, vacatur is not appropriate.<sup>19</sup> In particular, Friends of the Earth contends that, because a similar

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(unpublished). We treat the filing as the answer of Friends of the Earth, supported by NRDC, as we did in CLI-12-20. Southern California Edison did not file an answer; the Staff represents that Edison does not object to its request. Staff Motion to Vacate at 4 n.20.

<sup>17</sup> State of New York and State of Vermont Motion for Leave to File Brief Amici Curiae in Support of Petitioner and in Opposition to NRC Staff's Motion to Vacate the Atomic Safety and Licensing Board's Full Initial Decision, LBP-13-07 (June 24, 2013) (States' Motion); State of New York and State of Vermont Brief Amici Curiae in Support of Petitioner and in Opposition to NRC Staff's Motion to Vacate the Atomic Safety and Licensing Board's Full Initial Decision, LBP-13-07 (June 24, 2013) (States' Brief). The States request that we accept the brief pursuant to 10 C.F.R. § 2.315(d) or, alternatively, as an exercise of our inherent supervisory authority over adjudications. States' Motion at 1. The Staff opposes the States' motion. *See* NRC Staff's Answer to Motion to Submit Brief Amici Curiae (July 2, 2013). Section 2.315(d) provides for the filing of amicus curiae briefs when we have taken up a matter pursuant to § 2.341 or *sua sponte*, neither of which is the case here. While our rules do not provide for the filing of amicus curiae briefs on motions filed pursuant to 10 C.F.R. § 2.323, as a matter of discretion, we have reviewed both the States' brief and the Staff's opposition.

The States did not file their motion and brief via the agency's E-filing system, as required by 10 C.F.R. § 2.302, nor did they seek an exemption from that rule. We remind adjudicatory participants that electronic filing is required, unless the presiding officer grants an exemption permitting an alternative filing method for good cause shown, or unless the filing falls within the scope of the exception identified in 10 C.F.R. § 2.302(g)(1).

<sup>18</sup> Staff Motion to Vacate at 1.

<sup>19</sup> Joint Answer at 6.

legal issue may occur in a future proceeding involving different litigants, the underlying issues in the case are not moot.<sup>20</sup>

“Generally, a case will be moot when the issues are no longer ‘live,’ or the parties lack a cognizable interest in the outcome.”<sup>21</sup> The fundamental dispute in this case revolved around the circumstances under which Unit 2 would be permitted to restart. Because San Onofre is now permanently shut down — and will not restart — no live controversy remains between the litigants in this case.<sup>22</sup>

Friends of the Earth’s arguments regarding mootness are unavailing. Although Friends of the Earth cites *Davis-Besse* and *Advanced Medical Systems* for the general proposition that an appeal is not moot if there is a possibility of similar acts recurring in the future, these cases refer to instances where the same litigants likely will be subject to similar future action.<sup>23</sup> We do not expect the litigants here — Friends of the Earth, Southern California Edison, and the NRC Staff — to be subject to similar circumstances in the future, since Southern California Edison has permanently ceased operation of the subject facility. Friends of the Earth contends that future similar “situations in which a determination must be made on whether the process engaged in between the Staff and a licensee is a *de facto* license amendment proceeding” may arise, thus bringing the case within *Davis-Besse* and *Advanced Medical Systems*.<sup>24</sup> While this legal question might indeed come up in a future adjudication involving different litigants, it is too general — and too speculative — for resolution here. Such a future case is

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<sup>20</sup> *Id.* at 9-10.

<sup>21</sup> *Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Unit 2), CLI-93-10, 37 NRC 192, 200 (1993) (citing *County of Los Angeles v. Davis*, 440 U.S. 625, 631 (1979); *Murphy v. Hunt*, 455 U.S. 478, 481 (1982)).

<sup>22</sup> See, e.g., *Comanche Peak*, CLI-93-10, 37 NRC at 200; *Alvarez v. Smith*, 558 U.S. 87, 92 (2009) (“The Constitution permits this Court to decide legal questions only in the context of actual “Cases” or “Controversies.”) While we are not strictly bound by the “case or controversy” requirement, the same analysis the federal courts use to determine whether a case is moot can be applied to our cases.

<sup>23</sup> Joint Answer at 9 (citing *Toledo Edison Co.* (Davis-Besse Nuclear Power Station, Units 1, 2, and 3), ALAB-560, 10 NRC 265, 400 (1979); *Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-93-8, 37 NRC 181, 185 (1993) (citing *County of Los Angeles v. Davis*, 440 U.S. at 631).

*Davis-Besse* was an antitrust proceeding, in which the Licensing Board conditioned the licenses for Davis-Besse and Perry upon finding that the license applicants had violated the antitrust laws in dealing with their competitors. The Appeal Board, in modifying and affirming that decision, noted “that the extensive past misconduct of the applicants suggests a real possibility that they may again try to force small electric systems in their area out of business once the heat of this litigation has passed.” *Davis-Besse*, ALAB-560, 10 NRC at 400. And in *Advanced Medical Systems*, the licensee challenged the Staff’s use of immediately effective orders after fulfilling the underlying requirements of those orders. CLI-93-8, 37 NRC at 182. We held that, to show that the case is not moot, the movant must show a reasonable expectation that it will be subjected to the same action again. *Id.* at 187.

<sup>24</sup> Joint Answer at 9.

appropriately decided in the context of a concrete dispute, with “self-interested parties vigorously advocating opposing positions.”<sup>25</sup> Indeed, were Friends of the Earth’s argument to carry the day, no Board decision ever would be vacated.<sup>26</sup>

In our view, then, the motion turns not on the question whether the case is moot, but rather on the question whether vacatur is appropriate. As an initial matter, Friends of the Earth argues that vacatur is improper where the Staff has not petitioned for review of the Board’s decision.<sup>27</sup> This case does differ in timing from previous cases involving vacatur — oftentimes, the controversy has ended during the pendency of appeals before the Commission or the Appeal Board.<sup>28</sup> In contrast, the instant controversy ended during the brief period in which petitions for review could have been filed. This difference in timing should not determine the outcome here. Because Southern California Edison has permanently ceased power operation at San Onofre, requiring the Staff to file a petition for review of LBP-13-7 would elevate process over substance. Given that this adjudication will go no further, the issue before us is not the propriety of an appeal, but the propriety of vacatur.

Unreviewed Board decisions do not create binding legal precedent.<sup>29</sup> Nonetheless, as a prudential matter, we will vacate such decisions when appellate review is cut short by mootness.<sup>30</sup> The Commission has long done so as a routine matter.

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<sup>25</sup> Cf. U.S. Parole Commission v. Geraghty, 445 U.S. 388, 403 (1980) (citations omitted). See also Alvarez, 558 U.S. at 92.

<sup>26</sup> We have recognized an exception to the mootness doctrine, where “a case may not be moot if it is ‘capable of repetition, yet evading review’: i.e., if the challenged action were too short in duration to be litigated and there is a reasonable expectation that the same party will be subjected to the same action again.” *Advanced Medical Systems*, CLI-93-8, 37 NRC at 185 (citing *Southern Pacific Terminal Co. v. Interstate Commerce Commission*, 219 U.S. 498, 515 (1911); *Securities & Exchange Commission v. Sloan*, 436 U.S. 103, 109 (1978); *Center for Science in the Public Interest v. Regan*, 727 F.2d 1161, 1170 (D.C. Cir. 1984)). Friends of the Earth does not make this argument, but in any event, given the permanent shutdown of the plant and the fact that the same parties will not confront the same issues again, this case would not fall within that exception.

<sup>27</sup> Joint Answer at 10-11.

<sup>28</sup> See, e.g., *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-5, 47 NRC 113 (1998); *Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), CLI-96-2, 43 NRC 13 (1996); *Comanche Peak*, CLI-93-10, 37 NRC at 192.

<sup>29</sup> See, e.g., *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-05-22, 62 NRC 542, 544 (2005); *Baltimore Gas & Electric Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-98-25, 48 NRC 325, 343 n.3 (1998)). Friends of the Earth argues that vacating the Board decision would violate the *stare decisis* principle. Joint Answer at 10. Under this principle, a tribunal should abide by precedent and decline to disturb settled matters. But *stare decisis* is not implicated here — the Board decision is not binding on future tribunals.

<sup>30</sup> See, e.g., *PFS*, CLI-05-22, 62 NRC at 544; *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-99-24, 50 NRC 219, 222 (1999); *Claiborne*, CLI-98-5, 47 NRC at 114; *North Atlantic* (Continued)

Denying vacatur here would thus represent a marked departure from established Commission precedent. Moreover, this matter has been sharply contested and, following the Board’s rigorous review of the issues, culminated in a lengthy and complex decision. We find vacatur particularly appropriate here, where the litigants vigorously disputed (among other things) the proper scope of the Board’s review and whether the CAL constituted a *de facto* license amendment. When vacating for mootness, we neither approve nor disapprove the underlying Board ruling; therefore, we take no position on the Board’s decision.<sup>31</sup>

New York and Vermont express concern that vacatur will “remov[e] this decision from public access.”<sup>32</sup> But this is not the case. Regardless of vacatur, the decision is an agency record, and will not be excised from the public view. Like other NRC decisions that have been vacated, LBP-13-7 is, and will be, available to the public via the ADAMS system, and we expect this decision to be published as part of NUREG-0750, a compilation of Commission and Board decisions.<sup>33</sup> Future litigants can cite the decision as support for an argument; we or a licensing board then may consider whether such an argument is persuasive.<sup>34</sup>

One other matter merits brief mention. Friends of the Earth argues that vacatur is particularly inadvisable here, where we specifically referred the CAL issue to the Board to receive the Board’s guidance on whether the CAL process constituted a *de facto* license amendment and on the process due to the public in

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*Energy Service Corp.* (Seabrook Station, Unit 1), CLI-98-24, 48 NRC 267, 269 (1998); *Oncology Services Corp.*, CLI-93-17, 38 NRC 44, 49 (1993); *Comanche Peak*, CLI-93-10, 37 NRC at 205; *Fewell Geotechnical Engineering, Ltd.* (Thomas E. Murray, Radiographer), CLI-92-5, 35 NRC 83, 84 (1992); *Consumers Power Co.* (Palisades Nuclear Plant), CLI-82-18, 16 NRC 50, 51 (1982); *Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), CLI-80-34, 12 NRC 407, 408 (1980); *Commonwealth Edison Co.* (Braidwood Nuclear Power Station, Units 1 and 2), ALAB-874, 26 NRC 156, 158 (1987); *US Ecology, Inc.* (Sheffield, Illinois Low-Level Radioactive Waste Disposal Site), ALAB-866, 25 NRC 897, 898 (1987); *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-842, 24 NRC 197, 198-99 (1986); *United States Department of Energy* (Clinch River Breeder Reactor Plant), ALAB-755, 18 NRC 1337, 1338-39 (1983); *Rochester Gas and Electric Corp.* (Sterling Power Project, Nuclear Unit No. 1), ALAB-596, 11 NRC 867, 869 (1980).

<sup>31</sup> Put another way, our decision to vacate LBP-13-7 “does not intimate any opinion on [its] soundness.” *Yankee Rowe*, CLI-99-24, 50 NRC at 222 (quoting *Kerr-McGee*, CLI-96-2, 43 NRC at 15); *Claiborne*, CLI-98-5, 47 NRC at 114 (quoting *Kerr-McGee*, CLI-96-2, 43 NRC at 15). Because we do not address the merits, we need not address Friends of the Earth’s argument that the Staff impermissibly raises objections to the merits of the Board’s decision without filing a petition for review under 10 C.F.R. § 2.341. Joint Answer at 15-17.

<sup>32</sup> States’ Brief at 4.

<sup>33</sup> See generally Internal Commission Procedures, Appendix 9, “Nuclear Regulatory Commission Issuances” (July 5, 2011).

<sup>34</sup> It bears noting that a prior Commission has touched on this point. In vacating three decisions of the Licensing and Appeal Boards in a 1982 *Palisades* matter, the Commission observed, “These decisions also should not be used for guidance.” *Palisades*, CLI-82-18, 16 NRC at 52. We note, however, that NRC litigants are not prohibited from referencing a vacated decision.

such situations.<sup>35</sup> But we referred the matter to the Board in the context of a live dispute with specific facts. Licensing boards are the appropriate finders of fact in most circumstances; referral of a matter for a fact-specific dispute occurs in the ordinary course of business.<sup>36</sup> That the Board decision here resulted from a referral does not, therefore, suggest that this is a special case meriting departure from our usual practice regarding vacatur for mootness.

### III. CONCLUSION

For the reasons set forth above, we *grant* the Staff's motion, *vacate* the Board's ruling in LBP-13-7, and *terminate* this proceeding.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 5th day of December 2013.

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<sup>35</sup> Joint Answer at 5.

<sup>36</sup> See 10 C.F.R. § 2.308 ("Upon receipt of a request for hearing or a petition to intervene, the Secretary will forward the request or petition and/or proffered contentions and any answers and replies either to the Commission for a ruling on the request/petition and/or proffered contentions or to the Chief Administrative Judge of the Atomic Safety and Licensing Board Panel for the designation of a presiding officer under § 2.313(a) to rule on the matter."). See also *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-05-19, 62 NRC 403, 411 (2005) ("[W]e expect our licensing boards to review testimony, exhibits, and other evidence carefully and to resolve factual disputes. That is the boards' chief function in our adjudicatory system.").

### **Additional Views of Chairman Allison M. Macfarlane**

The Staff has asked the Commission to follow its customary practice and vacate LBP-13-7 because, in view of Edison's decision to permanently retire San Onofre, no outstanding controversy remains, and this matter is now moot.<sup>1</sup> I concur that this matter is moot. Further, I understand that longstanding Commission case law and practice compels today's holding that vacatur of LBP-13-7 is warranted here, where the Commission's review has been cut short by mootness, and I do not advocate overturning longstanding Commission case law or practice. As discussed below, however, I question whether vacatur should be routinely granted as a matter of course.

One of the Commission's most important responsibilities is to ensure fairness in our adjudicatory proceedings. Our customary practice concerning vacatur, which is intended to achieve that goal, is designed to eliminate confusion and disagreement over what an unreviewed board decision may mean or what effect it may have in the resolution of safety or environmental issues in a future proceeding.<sup>2</sup> I am fully committed to ensuring fairness in our adjudicatory proceedings, but I am concerned that vacating LBP-13-7 in summary fashion may send the wrong message at a time when the NRC has not yet fully evaluated the issues that gave rise to the adjudicatory proceeding at San Onofre. Further, as discussed below, summarily vacating LBP-13-7 based on the motion before us does not, in my view, alleviate the Staff's concerns in any event.

Our case law on vacatur, while extensive, has been largely unchanged for many years. While the facts of the cases vary, as a general matter, the Commission will vacate as a matter of course a board decision "cut short by mootness" with little discussion, and with little apparent regard for the circumstances surrounding the end of the case. The Staff argues that vacatur is appropriate here because the Board decision "has created confusion" and is "unclear."<sup>3</sup> The Staff fails to elaborate on this claim or discuss how the Staff or others will be harmed if this decision is not vacated, though this is perhaps understandable, considering that our case law on the topic provides little guidance on what is required, and we have never required anything more. Omitting a detailed discussion of the basis for its motion is one thing, but the Staff's criticism of the Board's decision, particularly where no merits review was requested or needed, is another. Even though today's opinion involves no review of, or comment on, the merits of LBP-13-7, and the

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<sup>1</sup> Staff Motion to Vacate at 1-2.

<sup>2</sup> *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-99-24, 50 NRC 219, 222 (1999).

<sup>3</sup> Staff Motion to Vacate at 7. In support of its claim, the Staff cites a *Los Angeles Times* article, which acknowledges the issuance of the Board's decision, but does not discuss its contents; rather, the article appears to focus on the case going forward. *Id.* (citing Abby Sewell, *San Onofre Ruling Creates Confusion*, L.A. Times, May 13, 2013, <http://www.latimes.com/local/lanow/la-me-ln-san-onofre-decision-20130513,0,3187177.story>).

Commission did not base its decision to vacate the Board order on the Staff’s criticism of the order, I am concerned that the affirmative act of vacatur, based on the motion before us, gives the perception of rejecting the Board’s decision, without the benefit of a robust merits review.

To be sure, the NRC Staff did not cause this proceeding to become moot — Edison did — and I do not find that the Staff stands in Edison’s place in requesting vacatur.<sup>4</sup> But I am not persuaded by the Staff’s arguments that denial of vacatur will negatively impact decisionmaking by the Staff and licensees concerning future confirmatory action letters, or otherwise result in confusion. Our boards understand that “whether a CAL process constitutes a *de facto* license amendment proceeding is a highly fact-specific question.”<sup>5</sup> The Board’s resolution of the fact-specific issues in this case has no bearing on licensees who may, in the future, consider voluntary action associated with a CAL. Nor, as today’s decision observes, is LBP-13-7 binding on other boards that may be called upon to resolve similar issues.

Moreover, it is not clear that vacatur necessarily will eliminate “future confusion and dispute” over the “meaning or effect” of an unreviewed board decision. Unreviewed board decisions remain “on the books” in the sense that litigants in future cases are free to use the arguments therein to persuade us, or a licensing board. Disputes about the meaning and effect of the decision will be argued afresh in the context of that particular case. Any confusion today over the Board’s reasoning or conclusions exists whether or not the decision is vacated.

I do not believe that we should necessarily continue our practice of routinely vacating moot board decisions. Rather, we should require any litigant seeking vacatur to provide a robust discussion for its argument that vacatur is warranted. We should then take into account the particular facts at hand in deciding whether to vacate.<sup>6</sup>

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<sup>4</sup> See *U.S. Bancorp Mortgage Co. v. Bonner Mall Partnership*, 513 U.S. 18, 25 (1994) (“The denial of vacatur is merely one application of the principle that ‘[a] suitor’s conduct in relation to the matter at hand may disentitle him to the relief he seeks.’”) (quoting *Sanders v. United States*, 373 U.S. 1, 17 (1963)).

<sup>5</sup> LBP-13-7, 77 NRC at 328.

<sup>6</sup> See, e.g., *Bonner Mall*, 513 U.S. at 23-24 (discussing the post-*Munsingwear* practice of the federal courts, and observing that vacatur is not automatic, but will depend upon “the nature and character of the conditions which have caused the case to become moot.”).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Allison M. Macfarlane**, Chairman  
**Kristine L. Svinicki**  
**George Apostolakis**  
**William D. Magwood, IV**  
**William C. Ostendorff**

**In the Matter of**

**Docket Nos. 50-361-LA  
50-362-LA**

**SOUTHERN CALIFORNIA EDISON  
COMPANY**  
**(San Onofre Nuclear Generating  
Station, Units 2 and 3)**

**December 5, 2013**

**MOTIONS, WITHDRAWAL**

Upon receipt of a motion to withdraw an application, the Commission may place terms and conditions on the withdrawal, deny the application, or dismiss the application with prejudice.

**MOOTNESS**

The possibility that an issue may arise in the future is not grounds to continue with an appeal in a proceeding where no live controversy remains between the litigants.

**MOOTNESS**

The Commission has recognized an exception to the mootness doctrine when the same litigants are likely to be subject to similar future action. In the same

vein, the Commission has recognized an exception to the mootness doctrine when a case is capable of repetition, yet evading review.

## **VACATUR**

It is the Commission's customary practice to vacate a challenged licensing board decision when, during the pendency of an appeal, the proceeding becomes moot.

## **VACATUR**

The Commission's decision to vacate a Board decision does not intimate any opinion on its soundness.

## **LICENSING BOARD DECISIONS: PRECEDENTIAL EFFECT**

Unreviewed board decisions are not binding on future boards. They may, however, be cited by future litigants as persuasive authority.

## **MEMORANDUM AND ORDER**

Earlier this year, Citizens Oversight, Inc. appealed the Atomic Safety and Licensing Board's denial of its request for hearing and petition to intervene in this license amendment proceeding, challenging the Board's rejection of one of its proposed contentions.<sup>1</sup> While Citizens Oversight's appeal was pending, Southern California Edison Company filed a motion to withdraw its license amendment request, vacate the Board's decision, and dismiss the appeal as moot.<sup>2</sup> The NRC Staff likewise seeks to vacate the Board's decision and dismiss the appeal.<sup>3</sup> For the reasons set forth below, we grant Southern California Edison's and the Staff's motions.

### **I. BACKGROUND**

In 2011, Southern California Edison submitted a request to amend the operating

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<sup>1</sup> Citizens Oversight Petition for Review of LBP-12-25 (Jan. 14, 2013) (filed Jan. 15, 2013) (Appeal).

<sup>2</sup> Southern California Edison Company's Motion to Withdraw License Amendment Request and to Vacate LBP-12-25 and Associated Petition for Review as Moot (Aug. 8, 2013) (Edison Motion).

<sup>3</sup> NRC Staff's Motion to Vacate Licensing Board Order LBP-12-25 (Aug. 9, 2013) (Staff Motion).

licenses for San Onofre Nuclear Generating Station Units 2 and 3, in which it sought to revise the technical specifications for both units.<sup>4</sup> Among other things, Southern California Edison proposed to relocate a number of surveillance frequencies from the technical specifications to a separate, licensee-controlled document describing a new “Surveillance Frequency Control Program.”<sup>5</sup> Surveillance frequencies indicate how often Southern California Edison must test or inspect (that is, fulfill the surveillance requirements<sup>6</sup> for) certain structures, systems, and components.<sup>7</sup> Under Southern California Edison’s proposal, the surveillance requirements would have remained in the operating licenses’ technical specifications, but the details concerning surveillance frequencies would, in most cases, have resided in the licensee’s Surveillance Frequency Control Program.<sup>8</sup> The program, if approved, generally would have enabled Southern California Edison to make future changes to the surveillance frequencies without further amending its operating licenses.<sup>9</sup>

The Staff published a notice of the license amendment request in the *Federal Register* with an opportunity for public comment, along with an opportunity to request a hearing.<sup>10</sup> Citizens Oversight requested a hearing and submitted three proposed contentions — Contentions 1, 2, and 3.<sup>11</sup> Southern California Edison

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<sup>4</sup> The complete license amendment request is available at ADAMS Accession No. ML112510214 (package) (LAR).

<sup>5</sup> See LAR, Attachment 1, Vol. 14, at 83 (ADAMS Accession No. ML11251A108) (proposed revision to Technical Specification 5.5.2.18); Bauder, Douglas R., Site Vice President and Station Manager, San Onofre Nuclear Generating Station, Letter to NRC (July 29, 2011), Enclosure 2, at 2, Enclosure 3, at 2 (ADAMS Accession No. ML11251A086).

<sup>6</sup> Surveillance requirements “are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.” 10 C.F.R. § 50.36(c)(3).

<sup>7</sup> See LAR, Attachment 1, Vol. 1, at 30-38 (ADAMS Accession No. ML11251A094) (describing surveillance frequencies and providing examples).

<sup>8</sup> See *id.*, Vol. 14, at 83.

<sup>9</sup> As proposed, Southern California Edison would have controlled changes to the surveillance frequencies as long as those changes satisfied the provisions of NEI 04-10. See *id.* (citing NEI 04-10, Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies, Rev. 1 (Apr. 2007) (ADAMS Accession No. ML071360456)). If Southern California Edison sought to make a change to a surveillance frequency that did not conform to NEI 04-10, it would then need to request a license amendment pursuant to 10 C.F.R. § 50.90.

<sup>10</sup> Southern California Edison, San Onofre Nuclear Generating Station, Units 2 and 3; Application and Amendment to Facility Operating License Involving Proposed No Significant Hazards Consideration Determination, 77 Fed. Reg. 49,463, 49,463-64, 49,471 (Aug. 16, 2012) (Notice).

<sup>11</sup> Petition to Intervene and Request for Hearing by Citizens Oversight (Oct. 17, 2012) at 5-16 (Hearing Request).

and the Staff opposed the hearing request.<sup>12</sup> The Board denied the hearing request, finding that none of the proposed contentions were admissible.<sup>13</sup>

Citizens Oversight was particularly concerned that relocation of the surveillance frequencies to the Surveillance Frequency Control Program would permit Southern California Edison to modify the time between surveillances “with no oversight by the public and no approval from the NRC.”<sup>14</sup> Citizens Oversight appealed the Board’s ruling, urging us to reverse the Board and admit Contention 1.<sup>15</sup> In Contention 1, Citizens Oversight had asserted that public oversight through the NRC’s adjudicatory hearing process is necessary to prevent the diminished safety that Citizens Oversight had argued would result from the Surveillance Frequency Control Program.<sup>16</sup>

During the pendency of Citizens Oversight’s appeal, Southern California Edison notified the Staff of its intent to permanently shut down San Onofre Units 2 and 3.<sup>17</sup> Southern California Edison subsequently issued a certification of permanent shutdown.<sup>18</sup> A month later, Southern California Edison informed the Staff that it was withdrawing a number of proposed licensing actions, including the license amendment request challenged here.<sup>19</sup> Southern California Edison and the Staff filed the instant motions shortly thereafter.

Southern California Edison now requests that we permit it to withdraw its

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<sup>12</sup> Southern California Edison Company’s Answer Opposing Petition to Intervene and Request for Hearing by Citizens Oversight (Nov. 13, 2012) at 2; NRC Staff’s Answer to Petition to Intervene and Request for Hearing by Citizens Oversight (Nov. 9, 2012) at 1.

<sup>13</sup> LBP-12-25, 76 NRC 540, 543 (2012).

<sup>14</sup> Appeal at 6.

<sup>15</sup> *Id.* at 5. Citizens Oversight did not challenge the Board’s dismissal of Contentions 2 and 3. In Contention 2, Citizens Oversight pointed out perceived errors and inconsistencies in the license amendment request. *See* Hearing Request at 9-16. In Contention 3, Citizens Oversight asserted that the Staff should process as a separate license amendment request Southern California Edison’s proposal to restart Units 2 and 3 after the January 2012 emergency shutdown. *Id.* at 16. Southern California Edison and the Staff opposed the appeal. Southern California Edison Company’s Answer in Opposition to the Citizens Oversight Petition for Review of LBP-12-25 (Feb. 8, 2013) at 2 (Southern California Edison Answer); NRC Staff Answer to Citizens Oversight Appeal (Feb. 8, 2013) at 1 (Staff Answer).

<sup>16</sup> *See* Hearing Request at 5-9; Appeal at 6.

<sup>17</sup> *See* NRC Staff Motion for Extension of Time to File Petition for Review (filed in the San Onofre Confirmatory Action Letter electronic hearing docket) (June 7, 2013) (ADAMS Accession No. ML13158A183).

<sup>18</sup> Dietrich, Peter T., Senior Vice President and Chief Nuclear Officer, Southern California Edison, Letter to NRC (June 12, 2013) at 1 (ADAMS Accession No. ML131640201).

<sup>19</sup> St. Onge, Richard, Director, Nuclear Regulatory Affairs and Emergency Planning, Southern California Edison, Letter to NRC (July 30, 2013) at 1 (ADAMS Accession No. ML13212A250); Commission Notification of Southern California Edison’s Withdrawal of Standard Technical Specifications License Amendment Request (Aug. 6, 2013).

license amendment request without conditions and without prejudice.<sup>20</sup> Both Southern California Edison and the Staff request that we dismiss Citizens Oversight's appeal and vacate as moot the Board's decision in LBP-12-25.<sup>21</sup>

Citizens Oversight opposes the motions, in part.<sup>22</sup> Although it does not object to Southern California Edison's motion to withdraw the license amendment request, Citizens Oversight argues that it would be inappropriate to vacate LBP-12-25 and dismiss its appeal as moot.<sup>23</sup> According to Citizens Oversight, other licensees might in the future seek to relocate their surveillance frequencies to licensee-controlled documents.<sup>24</sup> Therefore, Citizens Oversight asserts that its appeal presents an opportunity for us to consider its challenge to the relocation of surveillance frequencies as a general matter, outside of an active license amendment request.<sup>25</sup>

## II. DISCUSSION

Upon receipt of a motion to withdraw an application, we may place terms and conditions on the withdrawal, deny the application, or dismiss the application with prejudice.<sup>26</sup> Southern California Edison's motion to withdraw is unopposed, and it appears that neither Citizens Oversight nor the public will be prejudiced by the withdrawal.<sup>27</sup> Southern California Edison has permanently shut down both units; both reactors have been defueled.<sup>28</sup> We therefore grant Southern California Edison's motion to withdraw its license amendment request without placing

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<sup>20</sup> See Edison Motion at 5.

<sup>21</sup> See *id.* at 5-6; Staff Motion at 2.

<sup>22</sup> See Citizens Oversight's Answer to Motion to Vacate Ruling of ASLB on Petition to Intervene and Request a Hearing and the Subsequent Appeal of that Ruling (Aug. 18, 2013) (filed Aug. 19, 2013) at 2 (Citizens Oversight Answer).

<sup>23</sup> *Id.* at 12, 16.

<sup>24</sup> *Id.* at 12.

<sup>25</sup> *Id.*

<sup>26</sup> See 10 C.F.R. § 2.107(a).

<sup>27</sup> See *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-99-24, 50 NRC 219, 222 (1999) (finding no prejudice to either the intervenors or the public where the intervenors would have been "in precisely the same position in any subsequent proceeding as if they had prevailed not only on their instant appeal but also on the subsequent merits portion of th[e] proceeding"); *Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-662, 14 NRC 1125, 1135 & n.11 (1981) (observing that an opposing party's litigation expenses — present or future — do not "provide a basis for departing from the usual rule that a dismissal should be without prejudice").

<sup>28</sup> See Dietrich, Peter T., Senior Vice President and Chief Nuclear Officer, Southern California Edison, Letter to NRC (July 22, 2013) (ADAMS Accession No. ML13204A304); Dietrich, Peter T., Senior Vice President and Chief Nuclear Officer, Southern California Edison, Letter to NRC (June 28, 2013) (ADAMS Accession No. ML13183A391).

terms or conditions on the withdrawal, and we decline to dismiss the application with prejudice.<sup>29</sup> As a result of Southern California Edison’s withdrawal, this proceeding is now moot.<sup>30</sup>

Citizens Oversight argues that we should not dismiss its appeal or vacate LBP-12-25 notwithstanding Southern California Edison’s withdrawal of its license amendment request.<sup>31</sup> In particular, Citizens Oversight asserts that its appeal is not moot because the safety concerns that it raised in Contention 1 would apply equally to similar, future license amendment requests sought by licensees other than Southern California Edison.<sup>32</sup> But the possibility that an issue may arise in the future is not grounds to continue with an appeal in a proceeding where no live controversy remains between the litigants.<sup>33</sup> To be sure, we have recognized an exception to the mootness doctrine when the same litigants are likely to be subject to similar future action.<sup>34</sup> But because Southern California Edison has permanently ceased operation of San Onofre Units 2 and 3, we do not expect the issues raised on appeal to arise in a future adjudication involving Citizens Oversight, Southern California Edison, and the NRC Staff.<sup>35</sup>

In essence, Citizens Oversight has requested that we issue an advisory opinion — a practice we disfavor<sup>36</sup> — on the soundness of relocating certain surveillance frequencies from operating license technical specifications to licensee-controlled

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<sup>29</sup> See *Yankee Rowe*, CLI-99-24, 50 NRC at 221-22 (“[T]he dismissal of an appeal with prejudice (similar to termination of a proceeding with prejudice) generally implies that we have ruled on the merits of the appeal . . . [and is] reserved for unusual situations involving substantial prejudice to an opposing party or to the public interest in general.”).

<sup>30</sup> See *North Atlantic Energy Service Corp.* (Seabrook Station, Unit 1), CLI-98-24, 48 NRC 267, 268-69 (1998); *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-5, 47 NRC 113, 114-15 (1998).

<sup>31</sup> Citizens Oversight Answer at 12.

<sup>32</sup> See *id.* at 12-13.

<sup>33</sup> CLI-13-9, 78 NRC 551, 557-58 (2013).

<sup>34</sup> See CLI-13-9, 78 NRC at 557 n.23; *Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-93-8, 37 NRC 181, 187 (1993). See also *Toledo Edison Co.* (Davis-Besse Nuclear Power Station, Units 1, 2, and 3), ALAB-560, 10 NRC 265, 400 (1979).

<sup>35</sup> See CLI-13-9, 78 NRC at 557-58. In the same vein, we have recognized an exception to the mootness doctrine when a case is “capable of repetition, yet evading review.” *Advanced Medical Systems*, CLI-93-8, 37 NRC at 185 (quoting *Southern Pacific Terminal Co. v. Interstate Commerce Commission*, 219 U.S. 498, 515 (1911); *Securities & Exchange Commission v. Sloan*, 436 U.S. 103, 109 (1978); *Center for Science in the Public Interest v. Regan*, 727 F.2d 1161, 1170 (D.C. Cir. 1984)). But a challenge to a different licensee’s request to relocate its surveillance frequencies would not evade future review. See *id.* at 188. If a licensee sought to relocate its surveillance frequencies from its operating license to a licensee-controlled document, then it would need to request a license amendment, which would trigger an opportunity for a member of the public to request a hearing. See AEA § 189a, 42 U.S.C. § 2239(a)(1)(A).

<sup>36</sup> *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-13-4, 77 NRC 101, 105 (2013).

documents.<sup>37</sup> We find, however, that such an issue is better resolved in the context of a concrete dispute, where all of the parties have a stake in the outcome of the litigation.<sup>38</sup> If Citizens Oversight wishes to pursue its concerns about the safety of relocating certain surveillance frequencies generically, it may, at any time, file a petition for rulemaking to amend 10 C.F.R. § 50.36 (or any other regulatory provision).<sup>39</sup> But in the absence of a live controversy here, we dismiss this proceeding, and Citizens Oversight’s appeal, as moot.<sup>40</sup>

It is our customary practice to vacate a challenged licensing board decision when, during the pendency of an appeal, the proceeding becomes moot.<sup>41</sup> We see no reason to depart from that practice today. We therefore vacate LBP-12-25, take no position on its substance, and express neither approval nor disapproval of the Board’s rulings in that decision. As we emphasized in CLI-13-9, “our decision to vacate [the Board’s decision] ‘does not intimate any opinion on [its] soundness.’”<sup>42</sup>

### III. CONCLUSION

In view of the permanent shutdown of San Onofre Units 2 and 3, we *grant* Southern California Edison’s motion to withdraw its request to amend its operating licenses without conditions, and without prejudice. Accordingly, we *dismiss* Citizens Oversight’s pending appeal and *vacate* LBP-12-25 as moot.

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<sup>37</sup> See Citizens Oversight Answer at 12-13.

<sup>38</sup> See CLI-13-9, 78 NRC at 557-58.

<sup>39</sup> See 10 C.F.R. § 2.802(a) (“Any interested person may petition the Commission to issue, amend[,] or rescind any regulation.”).

<sup>40</sup> See *id.* § 2.107(a) (“If the application is withdrawn prior to issuance of a notice of hearing, the Commission shall dismiss the proceeding.”).

<sup>41</sup> See CLI-13-9, 78 NRC at 558-59 & n.30 (and cases cited therein).

<sup>42</sup> CLI-13-9, 78 NRC at 559 n.31 (quoting *Yankee Rowe*, CLI-99-24, 50 NRC at 222). Unreviewed board decisions are not binding on future boards. CLI-13-9, 78 NRC at 558 (citing *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-05-22, 62 NRC 542, 544 (2005); *Baltimore Gas & Electric Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-98-25, 48 NRC 325, 343 n.3 (1998); *Claiborne*, CLI-98-5, 47 NRC at 114. They may, however, be cited by future litigants as persuasive authority. See CLI-13-9, 78 NRC at 559.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 5th day of December 2013.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**OFFICE OF NUCLEAR REACTOR REGULATION**

**Eric J. Leeds**, Director

**In the Matter of**

**Docket Nos. 50-325**

**50-324**

**(License Nos. DPR-71,  
DPR-62)**

**DUKE ENERGY PROGRESS, INC.  
(Brunswick Steam Electric Plant,  
Units 1 and 2)**

**December 30, 2013**

By letter dated July 10, 2012, Mr. David Lochbaum, on behalf of the Union of Concerned Scientists; the North Carolina Waste Awareness & Reduction Network; and the Nuclear Information and Resource Service (the Petitioners) filed a petition (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12193A123) under Title 10 of the *Code of Federal Regulations* (10 C.F.R.), Part 2, section 2.206, “Requests for action under this subpart.” The Petitioners requested that the U.S. Nuclear Regulatory Commission (NRC, or the Commission) take enforcement action in the form of an order either modifying the Brunswick Steam Electric Plant operating licenses or requiring the licensee to submit amendment requests for these licenses. Specifically, the Petitioners requested that the order result in specified revisions of these technical specifications (TSs) for Brunswick Units 1 and 2:

- (1) Revise TS 2.1, “Safety Limits (SL),” to include a requirement like the one in TS 2.1.1.3 that the water level shall be greater than the top of active irradiated fuel in the spent fuel pool (SFP).
- (2) Revise footnote (b) for TS Table 3.3.6.2-1, “Secondary Containment Isolation Instrumentation,” to require the Reactor Building Exhaust Radiation-High function to be applicable whenever irradiated fuel is stored in the SFP.

- (3) Revise footnote (a) for TS Table 3.3.7.1-1, “Control Room Emergency Ventilation (CREV) System Instrumentation,” to require the Control Building Air Intake Radiation–High function to be applicable whenever irradiated fuel is stored in the SFP.
- (4)-(8) Revise the APPLICABILITY for these TSs to include whenever irradiated fuel is stored in the SFP:
  - TS 3.6.4.1, “Secondary Containment,”
  - TS 3.6.4.2, “Secondary Containment Isolation Dampers,”
  - TS 3.6.4.3, “Standby Gas Treatment System,”
  - TS 3.7.3, “Control Room Emergency Ventilation (CREV) System,”
  - TS 3.7.4, “Control Room Air Conditioning (AC) System.”
- (9)-(12) Revise the APPLICABILITY for the following TSs to be whenever irradiated fuel is stored in the SFP instead of only when irradiated fuel assemblies are being moved in the SFP or secondary containment:
  - TS 3.7.7, “Spent Fuel Storage Pool Water Level,”
  - TS 3.8.2, “AC [alternating current] Sources — Shutdown,”
  - TS 3.8.5, “DC [direct current] Sources — Shutdown,”
  - TS 3.8.8, “Distribution Systems — Shutdown.”
- (13) Revise TS 3.9.7, “Residual Heat Removal (RHR) — High Water Level,” and TS 3.9.8, “Residual Heat Removal (RHR) — Low Water Level,” or add a new limiting condition for operation (LCO) to require one RHR subsystem to be operable whenever the entire reactor core is offloaded into the SFP.

In Director’s Decision DD-13-3, dated December 30, 2013, the Deputy Director of the Office of Nuclear Reactor Regulation denied the Petitioner’s request. The NRC Staff evaluated the Petitioners’ requests against the requirements and guidance for modifying the operating license. The Staff’s conclusions are summarized below:

Requested Action 1 — Addition of an SFP Level Safety Limit: The NRC Staff found the proposed safety limit is not appropriate and would be redundant to TSs already in place.

Requested Actions 2 through 12 — Modify the applicability of each LCO to apply whenever irradiated fuel is stored in the SFP rather than during movement

of irradiated fuel: The NRC Staff determined that the systems and functions described in the Petitioners' Requested Actions 2 through 12 would not need to have conditions or limitations established in the TSs when all irradiated fuel is seated in the SFP storage racks or in the reactor vessel.

Requested Action 13 — The Petitioners requested that the NRC revise TS 3.9.7, "Residual Heat Removal (RHR)—High Water Level," and/or TS 3.9.8, "Residual Heat Removal (RHR)—Low Water Level," or add a new LCO to require one RHR subsystem to be operable whenever the entire reactor core is offloaded into the SFP: The NRC Staff found out that the requested Action 13 does not satisfy the TS policy and the requested action is denied.

## **DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206**

### **I. INTRODUCTION**

By letter dated July 10, 2012, Mr. David Lochbaum, on behalf of the Union of Concerned Scientists; the North Carolina Waste Awareness & Reduction Network; and the Nuclear Information and Resource Service (the Petitioners) filed a petition (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12193A123) under Title 10 of the *Code of Federal Regulations* (10 C.F.R.), Part 2, section 2.206, "Requests for action under this subpart." The Petitioners requested that the U.S. Nuclear Regulatory Commission (NRC, or the Commission) take enforcement action in the form of an order either modifying the Brunswick Steam Electric Plant operating licenses or requiring the licensee to submit amendment requests for these licenses. Specifically, the Petitioners requested that the order result in specified revisions of these technical specifications (TSs) for Brunswick Units 1 and 2:

- (1) Revise TS 2.1, "Safety Limits (SL)," to include a requirement like the one in TS 2.1.1.3 that the water level shall be greater than the top of active irradiated fuel in the spent fuel pool (SFP).
- (2) Revise footnote (b) for TS Table 3.3.6.2-1, "Secondary Containment Isolation Instrumentation," to require the Reactor Building Exhaust Radiation—High function to be applicable whenever irradiated fuel is stored in the SFP.
- (3) Revise footnote (a) for TS Table 3.3.7.1-1, "Control Room Emergency Ventilation (CREV) System Instrumentation," to require the Control Building Air Intake Radiation—High function to be applicable whenever irradiated fuel is stored in the SFP.

- (4)-(8) Revise the APPLICABILITY for these TSs to include whenever irradiated fuel is stored in the SFP:
- TS 3.6.4.1, “Secondary Containment,”
  - TS 3.6.4.2, “Secondary Containment Isolation Dampers,”
  - TS 3.6.4.3, “Standby Gas Treatment System,”
  - TS 3.7.3, “Control Room Emergency Ventilation (CREV) System,”
  - TS 3.7.4, “Control Room Air Conditioning (AC) System.”
- (9)-(12) Revise the APPLICABILITY for the following TSs to be whenever irradiated fuel is stored in the SFP instead of only when irradiated fuel assemblies are being moved in the SFP or secondary containment:
- TS 3.7.7, “Spent Fuel Storage Pool Water Level,”
  - TS 3.8.2, “AC [alternating current] Sources — Shutdown,”
  - TS 3.8.5, “DC [direct current] Sources — Shutdown,”
  - TS 3.8.8, “Distribution Systems — Shutdown.”
- (13) Revise TS 3.9.7, “Residual Heat Removal (RHR)—High Water Level,” and TS 3.9.8, “Residual Heat Removal (RHR)—Low Water Level,” or add a new limiting condition for operation (LCO) to require one RHR subsystem to be operable whenever the entire reactor core is offloaded into the SFP.

The Petitioners had a recorded conference call with the NRC’s Office of Nuclear Reactor Regulation (NRR) Petition Review Board on August 15, 2012, to discuss and supplement the petition. The NRC has made the official transcript of that conference call publicly available online in the NRC’s Library at <http://www.nrc.gov/reading-rm/adams.html> (ADAMS Accession No. ML12234-A730). (Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC’s Public Document Room reference staff by telephone at 1-800-397-4209, or 301-415-4737, or by e-mail to PDR.Resource@nrc.gov.) During the call, the Petitioners reiterated the need for the actions called for in their petition. They also emphasized that, in a way similar to current TS requirements described above, the order to install SFP level instrumentation, issued in response to the accident at Fukushima Dai-ichi in Japan, did not explicitly or implicitly require that the instrumentation be operable or functional when irradiated fuel was present in the SFP. The Petitioners stated that the new SFP level instrumentation could be intentionally

removed from service, or placed out of service for maintenance, and not required to be available until the next movement of irradiated fuel.

In a letter dated October 31, 2012, the NRC informed the Petitioners that their request met the criteria for review under the 10 C.F.R. § 2.206 process, and that the agency was referring the issues in the petition to its Office of Nuclear Reactor Regulation for appropriate action.

## II. DISCUSSION

The Petitioners requested that the NRC take enforcement action in the form of an order that would result in a new TS SL and expand the applicability of numerous TS LCOs related to SFP storage. The Petitioners asserted that the changes sought would provide better management of the risk from irradiated fuel stored in the SFPs.

The NRC Staff reviewed the Petitioners' requested actions against the regulatory framework that is in place to determine when TS SLs, LCOs, or design features are required, including the Commission's policy statement on TSs.

For completeness, the Staff also includes a discussion of other mechanisms that are in place to control the safe operation of the reactor and the storage of the irradiated fuel in the SFP, and describes the actions the Commission has taken and plans to take with regard to SFP level indication in the event of a beyond-design-basis external event.

### A. Regulatory Framework for Technical Specifications

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The NRC's regulatory requirements related to the content of the TSs are contained in 10 C.F.R. § 50.36, "Technical Specifications."

The regulations of 10 C.F.R. § 50.36 require that each license authorizing operation of a production or utilization facility include TSs derived from the analyses and evaluations included in the safety analysis report. The regulations require that the TSs include items in the following categories: (1) SLs, limiting safety systems settings and control settings; (2) LCOs; (3) surveillance requirements; (4) design features; and (5) administrative controls. SLs for nuclear reactors, as described in 10 C.F.R. § 50.36(c)(1)(i)(A), are limits on important process variables that are found to be necessary to reasonably protect the integrity of the physical barriers that guard against the uncontrolled release of radioactivity. LCOs, as described in 10 C.F.R. § 50.36(c)(2), are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When an LCO of a nuclear reactor is not met, the licensee must shut down the reactor or follow any remedial

action permitted by the TSs until the condition can be met. Design features to be included, as described in 10 C.F.R. § 50.36(c)(4), are those features of the facility such as materials of construction and geometric arrangements, which, if altered or modified, would have a significant effect on safety and are not covered by other TSs.

The regulations in 10 C.F.R. § 50.36(c)(2)(ii) require that a TS LCO of a nuclear reactor must be established for each item meeting one or more of the four criteria specified in the regulation. Specifically, 10 C.F.R. § 50.36(c)(2)(ii), states:

A technical specification limiting condition for operation of a nuclear reactor must be established for each item meeting one or more of the following criteria:

(A) *Criterion 1*. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

(B) *Criterion 2*. A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

(C) *Criterion 3*. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

(D) *Criterion 4*. A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

## **B. Commission Policy Statement Regarding Technical Specifications**

The Commission issued a policy statement regarding TSs on July 22, 1993 (58 Fed. Reg. 39,132). The policy included the following discussion regarding the purpose of the TSs:

The purpose of Technical Specifications is to impose those conditions or limitations upon reactor operation necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety by identifying those features that are of controlling importance to safety and establishing on them certain conditions of operation which cannot be changed without prior Commission approval.

The policy statement goes on to discuss the above criteria for LCOs that were later codified in 10 C.F.R. § 50.36. These criteria were described as addressing

those aspects of reactor operation that contribute to the prevention of accidents and provide the capability to provide immediate mitigation of accidents.

The SLs, LCOs, and design features included in each facility's TSs are derived from the analyses and evaluations included in the safety analysis report. Evaluations demonstrating the prevention of accidents related to the SFP have been included in Chapter 9 of the Updated Final Safety Analysis Report (UFSAR) for Brunswick Units 1 and 2. These evaluations include prevention of a significant loss of coolant inventory under accident conditions and prevention of criticality, in ways consistent with General Design Criteria 61 and 62 of Appendix A to 10 C.F.R. Part 50. The evaluations of these events indicate that prevention has been principally achieved through the geometric arrangement of, and materials of construction used in, the SFP. Therefore, the necessary restrictions on the geometric configuration and material selection are provided in TS 4.3, "Fuel Storage," in the design features section of the Brunswick TSs. Similarly, analyses of accidents giving rise to an immediate threat to public health and safety requiring immediate mitigation have been included in Chapters 6 and 15 of the UFSAR for Brunswick, Units 1 and 2. Of these accident analyses, only the fuel-handling accident could potentially involve the SFP. Establishment of appropriate initial conditions and availability of equipment necessary for immediate mitigation of the fuel-handling accident are controlled by TS LCOs. These LCOs are designated as applicable only during movement of irradiated fuel because the fuel-handling accident is not credible when all fuel is properly seated in its storage locations.

### C. Other Regulatory Control Mechanisms

Requirements for ensuring the safety of reactor operation and spent fuel storage are described for each NRC-licensed facility in its safety analysis report. Under the provisions of 10 C.F.R. § 50.34, "Contents of Applications; Technical Information," an applicant for a construction permit must include the principal design criteria for a proposed facility, a description of the design bases, and the relationship of the design bases to the principal design criteria in the preliminary safety analysis report. As part of the application for an operating license, these principal design criteria and the facility design bases were transferred to the final safety analysis report supporting plant operation.

The safety analysis report includes a number of additional conditions and limitations that are also important to safe reactor operation and spent fuel storage. These additional conditions and limitations are subject to regulations that restrict the changes that can be implemented without prior Commission approval. Among these regulations are requirements to implement managerial and administrative controls to ensure safe operation through implementation of the facility's quality assurance program (10 C.F.R. § 50.54(a)) and requirements for licensees to obtain NRC approval before implementing changes to the facility or facility

procedures that do not meet certain criteria (10 C.F.R. § 50.59, “Changes, Tests and Experiments”).

In addition to these regulations, the administrative TSs for nuclear power plants typically include a requirement to establish, implement, and maintain a broad range of procedures for safe operation of the facility. Specifically, Brunswick administrative TS 5.4.1 requires, in part, that written procedures be established, implemented, and maintained for the applicable procedures recommended in Appendix A to Regulatory Guide 1.33, “Quality Assurance Program Requirements (Operation),” dated November 1972. These recommended procedures include general plant operations (e.g., refueling and operation of refueling equipment), operation of plant systems (e.g., the electrical distribution system, the reactor building ventilation systems, the shutdown cooling system, and the standby gas treatment system), procedures for response to alarm conditions (e.g., low SFP level alarm response), and procedures for combating emergencies (e.g., damage to irradiated fuel during refueling and acts of nature).

The design basis of the various facility structures, systems, and components (SSCs); the quality assurance program; the change control processes; and the required plant procedures work in concert to ensure that the facility’s SSCs would be kept within the design limits described in the UFSAR to accomplish their functions during normal operating conditions and design-basis accident conditions. The Brunswick design-basis information included in Chapter 9 of the UFSAR addresses many of the capabilities the Petitioners identified as important for safe irradiated fuel storage. These capabilities include the following:

- a system design that prevents unintentional removal of the water inventory and provides SFP cooling,
- an SFP cooling and cleanup system and supplemental SFP cooling system that keep SFP water temperature below 125 degrees Fahrenheit (°F),
- an SFP design that ensures sufficient thermal inertia to place an alternate means of SFP cooling in service following a loss of forced cooling before SFP coolant temperature exceeds 150°F,
- an RHR system that provides an alternate or supplemental means of cooling the SFP when the full core has been transferred to the pool or when the normal SFP cooling system is unavailable,
- an RHR system that provides a seismically qualified makeup flow path from the suppression pool to maintain adequate fuel pool coolant inventory in the event of a loss of SFP coolant.

#### **D. Control of Equipment Availability During Maintenance**

The regulations in 10 C.F.R. § 50.65 govern the control of equipment availability during maintenance. Because irradiated fuel is continually present in the SFP once the reactor discharges the first batch of spent fuel, and the conditions are most challenging during the period the reactor is shut down for refueling, maintenance of equipment related to the safe storage of spent fuel is typically addressed as part of shutdown risk management. Guidance for shutdown risk management under 10 C.F.R. § 50.65 is contained in NUMARC 93-01, Revision 4A, “Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” April 2011 (ADAMS Accession No. ML11116A198), which the NRC Staff endorsed with comments in Regulatory Guide 1.160, Revision 3, “Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” May 2012 (ADAMS Accession No. ML113610098). Guidance for implementation of the risk management requirements of 10 C.F.R. § 50.65(a)(4) during shutdown operations is included in section 11.3 of NUMARC 93-01. This guidance specifies that the scope of the required risk management includes these key safety functions:

- decay heat removal capability,
- inventory control,
- power availability,
- reactivity control,
- containment (primary/secondary).

Although these risk management guidelines are qualitative in nature, the NRC Staff concluded that the guidelines were adequate for managing the availability of key safety functions in the SFP based on the slow evolution of events during shutdown.

#### **E. Reliable Spent Fuel Pool Level Instrumentation**

Following the earthquake and tsunami at the Fukushima Dai-ichi nuclear power plant in March 2011, the NRC identified that reliable SFP instrumentation was needed to avoid the confusion and misapplication of resources that can result from beyond-design-basis external events when adequate instrumentation is not available. On March 12, 2012, the Commission established new SFP level instrumentation requirements with the issuance of Order EA-12-051 (hereinafter, Order), “Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation.” The Order required licensees to have reliable indication of the water level in their SFPs. The Staff also issued Interim Staff Guidance JLD-

ISG-2012-03, which endorsed the Nuclear Energy Institute's (NEI's) industry guidance document NEI 12-02, "Industry Guidance for Compliance with NRC Order EA-12-051, 'To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation.'" This document describes methods that are acceptable to the Staff for complying with EA-12-051.

Specifically, the Order required holders of operating licenses to have a reliable indication of the water level in associated spent fuel storage pools capable of supporting identification of these pool water level conditions by trained personnel: (1) level that is adequate to support operation of the normal fuel pool cooling system, (2) level that is adequate to provide substantial radiation shielding for a person standing on the spent fuel pool operating deck, and (3) level where fuel remains covered and actions to implement makeup water addition should no longer be deferred. The Order further specified the design features associated with the instrumentation, arrangement, mounting qualification, power supplies, independence, accuracy testing, and display. The Order also required the development of programs for training, procedures, and maintenance of the instrumentation.

The NRC-endorsed industry implementation document specifically addresses the availability of the new SFP instrumentation. NEI 12-02 states:

The primary or back-up instrument channel can be out of service for testing, maintenance and/or calibration for up to 90 days provided the other channel is functional. Additionally, compensatory actions must be taken if the instrumentation channel is not expected to be restored or is not restored within 90 days. If both channels become non-functioning then initiate actions within 24 hours to restore one of the channels of instrumentation and implement compensatory actions (e.g., use of alternate suitable equipment or supplemental personnel) within 72 hours.

### **III. CONCLUSION**

The NRC Staff evaluated the Petitioners' requests against the requirements and guidance for modifying the operating license. The Staff's conclusions are discussed in the following paragraphs.

#### **A. Requested Action 1 — Addition of an SFP Level Safety Limit**

Section 50.36(c)(1)(i)(A) of 10 C.F.R. describes the requirements for SLs for nuclear reactors as limits on important process variables that are found to be necessary to reasonably protect the integrity of the physical barriers that guard against the uncontrolled release of radioactivity. If any safety barrier is exceeded, the reactor must be shut down. Fuel cladding integrity SLs, as discussed in section 2.1.1, "General Electric Plants, BWR/4, Rev. 4, Standard Technical Specification

(NUREG-1433), Vol. 2, Bases," for the establishment of reactor core SLs, ensure that specified acceptable fuel design limits are not exceeded during steady-state operation, normal operational transients, and anticipated operational occurrences. SLs are set such that no significant fuel damage is calculated to occur if the limit is not violated. The regulations do not require fuel SLs for fuel that is not in a reactor and which cannot undergo sustained nuclear fission. A nuclear reactor, as defined in 10 C.F.R. § 50.2, is an apparatus, other than an atomic weapon, designed or used to sustain nuclear fission in a self-supporting chain reaction. The definition of a nuclear reactor does not apply to SFPs. Therefore, it would be inappropriate to establish an SL for SFP level in the Brunswick TSs. While establishing SLs for stored irradiated fuel is not appropriate, measures to prevent a significant loss of coolant inventory under accident conditions which could challenge the cooling of the stored fuel, consistent with General Design Criterion 61 of Appendix A to 10 C.F.R. Part 50, are documented in the UFSAR. Prevention of significant inventory loss below the top of irradiated fuel stored in the SFP has been principally achieved through the design and construction of the SFP. The necessary restrictions on the design and construction of the SFP are provided in TS 4.3, "Fuel Storage," in the design features section of the Brunswick TSs. With these design features in place and with consideration of the large coolant inventory change necessary to produce even a small change in water level, the water level in the SFP cannot be substantially changed in a short period of time. In consideration of the above, the proposed safety limit is not appropriate, and would be redundant to TSs already in place. Therefore, the NRC denies the Petitioners' request.

**B. Requested Actions 2 through 12 — Modify the Applicability of Each LCO to Apply Whenever Irradiated Fuel Is Stored in the SFP Rather Than During Movement of Irradiated Fuel**

The purpose of TSs is to impose those conditions or limitations on reactor operation necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety by identifying those features that are of controlling importance to safety and establishing on them certain conditions of operation that cannot be changed without prior Commission approval. The cited TSs ensure the immediate availability of systems designed to mitigate the radiological effects of fuel damage occurring during the movement of irradiated fuel assemblies within secondary containment based on evaluation of that postulated event in Chapter 15 of the Brunswick UFSAR. Evaluations demonstrating the prevention of abnormal situations and events related to storage of irradiated fuel in the SFP have been included in Chapter 9 of the Brunswick UFSAR. After transfer from the vessel, and with the irradiated fuel seated in the SFP racks, no abnormal situations or events are described in the safety analysis

report that would require the systems described in Requested Actions 2 through 12 to be available. Therefore, the systems and functions described in the Petitioners' Requested Actions 2 through 12 would not need to have conditions or limitations established in the TSs when all irradiated fuel is seated in the SFP storage racks or in the reactor vessel. For these reasons, the NRC Staff denies the Petitioners' Requested Actions 2 through 12.

### C. Requested Action 13

The Petitioners requested that the NRC revise TS 3.9.7, "Residual Heat Removal (RHR)-High Water Level," and/or TS 3.9.8, "Residual Heat Removal (RHR)-Low Water Level," or add a new LCO to require one RHR subsystem to be operable whenever the entire reactor core is offloaded into the SFP.

Brunswick TS 3.9.7 requires one RHR shutdown cooling subsystem to be operable and in operation during refueling mode with irradiated fuel in the vessel and reactor vessel water level greater than or equal to 21 feet 10 inches (6.65 meters). Brunswick TS 3.9.8 requires two RHR shutdown cooling subsystems to be operable, and one RHR shutdown cooling subsystem to be in operation during refueling mode with irradiated fuel in the vessel and reactor vessel water level less than 21 feet 10 inches (6.65 meters). The RHR system in each of the plant configurations described in TS 3.9.7 and TS 3.9.8 is required to remove heat from the reactor coolant when irradiated fuel is in the vessel. RHR is not required to mitigate any events or accidents evaluated in the safety analysis while the reactor is in refueling mode. However, the decay heat levels can be high, and near continuous circulation of coolant is necessary to accurately monitor reactor coolant system temperature. LCOs 3.9.7 and 3.9.8 each satisfy Criterion 4 of 10 C.F.R. § 50.36(c)(2)(ii)(D).

Once the fuel is transferred to the SFP, the decay heat levels have decreased, the natural circulation of coolant is enhanced by the reduction of interfering structures, and several systems (e.g., the RHR, the fuel pool cooling and cleanup, and the supplemental SFP cooling systems) are available to remove decay heat from the irradiated fuel. As evaluated in Chapter 9 of the Brunswick UFSAR, the significant heat sink provided by the volume of coolant in the SFP would provide substantial time for implementation of alternate cooling before SFP temperature limits could be reached following a loss of forced cooling. For this reason, Requested Action 13 does not satisfy the TS policy and the requested action is denied.

As provided in 10 C.F.R. § 2.206(c), a copy of this Director's Decision will be filed with the Secretary of the Commission for the Commission to review. As provided for by this regulation, the Decision will constitute the final action of the

Commission 25 days after the date of the Decision unless the Commission, on its own motion, institutes a review of the Decision within that time.

FOR THE NUCLEAR  
REGULATORY COMMISSION

Jennifer Uhle for

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,  
this 30th day of December 2013.



## CASE NAME INDEX

### DUKE ENERGY PROGRESS, INC.

REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket Nos. 50-325, 50-324 (License Nos. DPR-71, DPR-62); DD-13-3, 78 NRC 571 (2013)

### ENTERGY NUCLEAR OPERATIONS, INC.

OPERATING LICENSE RENEWAL; PARTIAL INITIAL DECISION (Ruling on Track 1 Contentions); Docket Nos. 50-247-LR, 50-286-LR (ASLBP No. 07-858-03-LR-BD01); LBP-13-13, 78 NRC 246 (2013)

REQUEST FOR ACTION; FINAL DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket No. 50-293 (License No. DPR-35); DD-13-2, 78 NRC 185 (2013)

### EXELON GENERATION COMPANY, LLC

OPERATING LICENSE RENEWAL; MEMORANDUM AND ORDER; Docket Nos. 50-352-LR, 50-353-LR; CLI-13-7, 78 NRC 199 (2013)

OPERATING LICENSE RENEWAL; MEMORANDUM AND ORDER (Denying Hearing Request and Petition to Intervene); Docket Nos. 50-454-LR, 50-455-LR, 50-456-LR, 50-457-LR (ASLBP No. 13-929-02-LR-BD01); LBP-13-12, 78 NRC 239 (2013)

### FIRSTENERGY NUCLEAR OPERATING COMPANY

LICENSE AMENDMENT; MEMORANDUM AND ORDER (Denying Petition for Intervention and Request for Hearing); Docket No. 50-346-LA (ASLBP No. 13-928-02-LA-BD01); LBP-13-11, 78 NRC 177 (2013)

### POWERTECH USA, INC.

MATERIALS LICENSE AMENDMENT; MEMORANDUM AND ORDER (Ruling on Proposed Contentions Related to the Draft Supplemental Environmental Impact Statement); Docket No. 40-9075-MLA (ASLBP No. 10-898-02-MLA-BD01); LBP-13-9, 78 NRC 37 (2013)

### SHIELDALLOY METALLURGICAL CORPORATION

MATERIALS LICENSE AMENDMENT; MEMORANDUM AND ORDER; Docket No. 40-7102-MLA; CLI-13-6, 78 NRC 155 (2013)

### SOUTHERN CALIFORNIA EDISON COMPANY

CONFIRMATORY ACTION LETTER; MEMORANDUM AND ORDER; Docket Nos. 50-361-CAL, 50-362-CAL; CLI-13-9, 78 NRC 551 (2013)

OPERATING LICENSE AMENDMENT; MEMORANDUM AND ORDER; Docket Nos. 50-361-LA, 50-362-LA; CLI-13-10, 78 NRC 563 (2013)

### STRATA ENERGY, INC.

MATERIALS LICENSE AMENDMENT; MEMORANDUM AND ORDER (Ruling on Motion to Resubmit Contentions and to Admit a New Contention); Docket No. 40-9091-MLA (ASLBP No. 12-915-01-MLA-BD01); LBP-13-10, 78 NRC 117 (2013)

### TENNESSEE VALLEY AUTHORITY

LICENSE RENEWAL; MEMORANDUM AND ORDER (Ruling on Petition to Intervene and Request for Hearing); Docket Nos. 50-327-LR, 50-328-LR (ASLBP No. 13-927-01-LR-BD01); LBP-13-8, 78 NRC 1 (2013)

### U.S. DEPARTMENT OF ENERGY

CONSTRUCTION AUTHORIZATION; MEMORANDUM AND ORDER; Docket No. 63-001; CLI-13-8, 78 NRC 219 (2013)



## LEGAL CITATIONS INDEX CASES

- Aberdeen & Rockfish R.R. Co. v. Students Challenging Regulatory Agency Procedures*, 422 U.S. 289, 320 (1975)  
under NEPA § 102(2)(C), which requires that an agency create an environmental impact statement, the moment at which an agency must have a final statement ready is the time at which it makes a recommendation or report on a proposal for federal action; LBP-13-10, 78 NRC 145 (2013)
- Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-93-8, 37 NRC 181, 182 (1993)  
licensee challenged NRC Staff's use of immediately effective orders after fulfilling the underlying requirements of those orders; CLI-13-9, 78 NRC 557 n.23 (2013)
- Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-93-8, 37 NRC 181, 185 (1993)  
exception to the mootness doctrine occurs if the challenged action is too short in duration to be litigated and there is a reasonable expectation that the same litigants will be subjected to the same action again; CLI-13-9, 78 NRC 558 n.26 (2013)  
exception to the mootness doctrine occurs when a case is capable of repetition, yet evading review; CLI-13-10, 78 NRC 568 n.35 (2013)  
general proposition that an appeal is not moot if there is a possibility of similar acts recurring in the future applies to instances where the same litigants likely will be subject to similar future action; CLI-13-9, 78 NRC 557 (2013)
- Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-93-8, 37 NRC 181, 187 (1993)  
exception to the mootness doctrine is recognized when the same litigants are likely to be subject to similar future action; CLI-13-10, 78 NRC 568 (2013)  
to show that the case is not moot, movant must show a reasonable expectation that it will be subjected to the same action again; CLI-13-9, 78 NRC 557 n.23 (2013)
- All Indian Pueblo Council v. United States*, 975 F.2d 1437, 1444 (10th Cir. 1992)  
agency need not analyze environmental consequences of alternatives it has in good faith rejected as too remote, speculative, or impractical or ineffective; LBP-13-9, 78 NRC 88 n.353 (2013)
- Allied-General Nuclear Services* (Barnwell Nuclear Fuel Plant Separations Facility), ALAB-296, 2 NRC 671, 680 (1975)  
if modification of the final environmental impact statement by NRC Staff testimony or the board's decision is too substantial, recirculation of the FEIS would be required; LBP-13-13, 78 NRC 525 (2013)
- Alvarez v. Smith*, 558 U.S. 87, 92 (2009)  
Constitution permits the Supreme Court to decide legal questions only in the context of actual cases or controversies; CLI-13-9, 78 NRC 557 n.22 (2013)  
future cases are appropriately decided in the context of a concrete dispute, with self-interested parties vigorously advocating opposing positions; CLI-13-9, 78 NRC 557-58 (2013)
- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-08-23, 68 NRC 461, 466 (2008)  
NRC Staff's safety review pursuant to 10 C.F.R. Part 54 is principally guided by two documents, GALL and the SRP-LR; LBP-13-13, 78 NRC 290 (2013)  
passive systems, structures, and components are subject to an aging management review only if they are long-lived, that is, not subject to replacement based on a qualified life or specified time period; LBP-13-13, 78 NRC 280 (2013)

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- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-08-23, 68 NRC 461, 468 (2008) for each plant-specific aging management programs for which there is no corresponding program in the GALL Report, the application must briefly describe licensee's operating experience in implementing that program; LBP-13-13, 78 NRC 283 (2013)
- if applicant uses a method other than identified in NUREG-1801, Generic Aging Lessons Learned Report, for managing effects of aging at its plant, then applicant should demonstrate to NRC Staff reviewers that its program includes the ten elements cited in the GALL Report and will likewise be effective; LBP-13-13, 78 NRC 283 (2013)
- license renewal applicant's use of an aging management program identified in NUREG-1801, Generic Aging Lessons Learned Report, constitutes reasonable assurance that it will manage the targeted aging effect during the renewal period; LBP-13-13, 78 NRC 282-83, 386 (2013)
- NRC Staff's review is intended to verify that applicant has properly scoped the aging management review, that existing or planned aging management programs conform to the descriptions in the license renewal application, and that documentation supporting the application is auditable, retrievable, and supports the application; LBP-13-13, 78 NRC 290 (2013)
- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-08-23, 68 NRC 461, 476 (2008) when a matter is not strictly adjudicatory in nature or otherwise does not fit cleanly within the procedures described in NRC rules of practice, the Commission undertakes a decision as an exercise of its inherent supervisory authority over agency proceedings; CLI-13-8, 78 NRC 224 (2013)
- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 260 (2009) boards may view petitioner's supporting information in a light favorable to the petitioner, but the petitioner (not the board) is required to supply all of the required elements for a valid intervention petition; LBP-13-8, 78 NRC 9 (2013)
- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 263 (2009) reasonable assurance is not quantified as equivalent to a 95% (or any other percent) confidence level, but is based on sound technical judgment of the particulars of a case and on compliance with NRC regulations; LBP-13-13, 78 NRC 282 (2013)
- to meet the reasonable assurance standard, applicant must make a showing that meets the preponderance-of-the-evidence threshold of compliance with the applicable regulations; LBP-13-13, 78 NRC 282 (2013)
- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 266 (2009) NRC Staff's safety review for license renewal applications is guided by NUREG-1800, Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants, and NUREG-1801, Generic Aging Lessons Learned Report; LBP-13-13, 78 NRC 282 (2013)
- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), LBP-06-11, 63 NRC 391, 399 (2006)
- the GALL Report is a nonbinding guidance document which, in the case of revisions, does not have the force of the law; LBP-13-13, 78 NRC 283-84 (2013)
- American Farm Lines v. Black Ball Freight Service*, 397 U.S. 532, 539 (1970) except upon a showing of substantial prejudice to the complaining party, it is always within the discretion of a court or an administrative agency to relax or modify its procedural rules adopted for the orderly transaction of business before it when in a given case the ends of justice require it; CLI-13-8, 78 NRC 232-233 n.68 (2013)
- Arizona Public Service Co.* (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), CLI-91-12, 34 NRC 143, 155 (1991) boards may appropriately view petitioner's supporting information in a light favorable to the petitioner; LBP-13-10, 78 NRC 147-48 (2013)
- Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 97 (1983) NEPA requires agencies to take a hard look at environmental consequences prior to taking major actions; LBP-13-13, 78 NRC 452 n.1413, 524 n.1959 (2013)
- Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 101 (1983) NRC has discretion to transact its business broadly, through rulemaking, or case-by-case, through adjudication; CLI-13-7, 78 NRC 207 (2013)

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- Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 102 (1983) consistent with NEPA's rule of reason, applicant and NRC Staff acted on the basis of best available information and analysis in completing the SAMA evaluation; LBP-13-13, 78 NRC 473 (2013)
- Baltimore Gas & Electric Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-98-25, 48 NRC 325, 343 n.3 (1998) unreviewed board decisions do not create binding legal precedent; CLI-13-9, 78 NRC 558 (2013); CLI-13-10, 78 NRC 569 n.42 (2013)
- BB&L, Inc. v. National Labor Relations Board*, 52 F.3d 366, 369 (D.C. Cir. 1995) agencies act arbitrarily and capriciously when they ignore their own relevant precedent; CLI-13-7, 78 NRC 205 n.19 (2013)
- Bennett v. Spear*, 520 U.S. 154, 169 (1997) when an agency's conclusions are different from the Fish and Wildlife Service's regarding endangered species, the agency must clearly articulate its reasons for disagreement; LBP-13-9, 78 NRC 95 (2013)
- Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1213 (9th Cir. 1998) NEPA's hard-look requirement does not allow sweeping generalities about possible effects and risk without a justification as to why more definitive information was not provided; LBP-13-13, 78 NRC 286, 452 (2013)
- Blue Ridge Environmental Defense League v. NRC*, 716 F.3d 183, 196 (D.C. Cir. 2013) NRC rules provide a mechanism for supplementing an original NEPA analysis, but the rules do not guarantee a hearing nor is a hearing necessary to satisfy NRC's NEPA obligations; CLI-13-7, 78 NRC 211 (2013)
- Boston Edison Co.* (Pilgrim Nuclear Power Station), ALAB-816, 22 NRC 461, 465-68 (1985) in the absence of a timely analysis of the section 2.309(c)(1) and (f)(1) new/amended contention precepts by the contention's sponsor, a board is not obligated to determine whether those new/amended contention requirements could have been met relative to a migrated environmental contention; LBP-13-10, 78 NRC 143 n.15 (2013)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 915 (2009) contemporaneous judicial concepts are applied in NRC proceedings; LBP-13-8, 78 NRC 7 (2013)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 915 n.15 (2009) proximity presumption applies in reactor operating license renewal proceedings; LBP-13-8, 78 NRC 7-8 (2013)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 915-16 (2009) petitioner residing within 50 miles of a nuclear power plant is presumed to have standing; LBP-13-8, 78 NRC 7 (2013)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63 (2012) onsite waste storage contentions are to be held in abeyance pending further Commission order; CLI-13-7, 78 NRC 202 n.3 (2013); LBP-13-8, 78 NRC 15 (2013)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63, 67 (2012) NRC will not issue licenses dependent upon the Waste Confidence Decision or the Temporary Storage Rule until the D.C. Circuit's remand is appropriately addressed; LBP-13-13, 78 NRC 270, 276 n.105 (2013)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63, 68-69 (2012) as an exercise of the Commission's inherent supervisory authority over NRC adjudications, it directs that waste storage and any related contentions be held in abeyance pending further order; LBP-13-8, 78 NRC 16 (2013); LBP-13-13, 78 NRC 270 (2013)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-13-4, 77 NRC 101, 105 (2013) Commision disfavors issuance of advisory opinions; CLI-13-10, 78 NRC 568 (2013)

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- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), LBP-09-4, 69 NRC 170, 184 (2009), *aff'd*, CLI-09-20, 70 NRC 911, 917-18, 924 (2009)  
licensing boards are bound by Commission precedent; CLI-13-7, 78 NRC 205 n.19 (2013)
- Carmel-by-the-Sea v. Department of Transportation*, 123 F.3d 1142, 1150-51 (9th Cir. 1997)  
taking a hard look at environmental impacts fosters both informed decisionmaking and informed public participation and ensures that the agency does not act upon incomplete information, only to regret its decision after it is too late to correct; LBP-13-13, 78 NRC 452 (2013)
- Center for Science in the Public Interest v. Regan*, 727 F.2d 1161, 1170 (D.C. Cir. 1984)  
exception to the mootness doctrine occurs if the challenged action is too short in duration to be litigated and there is a reasonable expectation that the same party will be subjected to the same action again; CLI-13-9, 78 NRC 558 n.26 (2013)  
exception to the mootness doctrine occurs when a case is capable of repetition, yet evading review; CLI-13-10, 78 NRC 568 n.35 (2013)
- Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 209 (D.C. Cir. 1991)  
NRC Staff cannot release NEPA documents that blindly parallel the applicant's information and omissions and then be allowed to argue that applicant's omissions prevent filing of new contentions concerning the newly released NEPA document; LBP-13-9, 78 NRC 59 (2013)
- City of Los Angeles v. Adams*, 556 F.2d 40, 49-50 (D.C. Cir. 1977)  
if Congress does not appropriate enough money to meet the needs of a class of beneficiaries prescribed by Congress, and if Congress is silent on how to handle this predicament, the law sensibly allows the administering agency to establish reasonable priorities and classifications; CLI-13-8, 78 NRC 226 n.29 (2013)
- City of West Chicago v. NRC*, 701 F.2d 632, 647 (7th Cir. 1983)  
NRC possesses the authority to change its procedures on a case-by-case basis; CLI-13-8, 78 NRC 233 n.68 (2013)
- Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), LBP-82-79, 16 NRC 1116, 1118 (1982)  
late-filed contentions lack good cause when they are based on a draft environmental impact statement that contains no new information relevant to the contention; LBP-13-9, 78 NRC 54 n.80 (2013)
- Commonwealth Edison Co.* (Braidwood Nuclear Power Station, Units 1 and 2), ALAB-874, 26 NRC 156, 158 (1987)  
*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558-59 (2013)
- Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-226, 8 AEC 381, 406 (1974)  
where contentions are defective for any reason, licensing boards have no duty to make them acceptable under 10 C.F.R. 2.309; LBP-13-9, 78 NRC 101 (2013)
- Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-283, 2 NRC 11, 17 (1975)  
applicant has the burden of proof on safety issues in a licensing proceeding; LBP-13-13, 78 NRC 279 (2013)
- Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-842, 24 NRC 197, 198-99 (1986)  
*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558-59 (2013)
- Consumers Power Co.* (Palisades Nuclear Plant), CLI-82-18, 16 NRC 50, 51 (1982)  
*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558-59 (2013)
- Consumers Power Co.* (Palisades Nuclear Plant), CLI-82-18, 16 NRC 50, 52 (1982)  
in vacating decisions of the Licensing and Appeal Boards, the Commission observed that the decisions also should not be used for guidance; CLI-13-9, 78 NRC 559 n.34 (2013)
- County of Los Angeles v. Davis*, 440 U.S. 625, 631 (1979)  
cases will be moot when the issues are no longer live, or the parties lack a cognizable interest in the outcome; CLI-13-9, 78 NRC 557 (2013)

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- general proposition that an appeal is not moot if there is a possibility of similar acts recurring in the future applies to instances where the same litigants likely will be subject to similar future action; CLI-13-9, 78 NRC 557 (2013)
- Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), CLI-09-9, 69 NRC 331, 350-51 (2009)  
issue of the alleged failure to consult with the tribe on historic and cultural resources is material and within the scope of a materials license proceeding; LBP-13-9, 78 NRC 51 n.54 (2013)
- Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), LBP-08-24, 68 NRC 691, 719-24 (2008)  
contention alleging a failure to protect historic and cultural resources is admissible; LBP-13-9, 78 NRC 51 n.53 (2013)
- Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), LBP-08-24, 68 NRC 691, 759 (2008)  
doctrine of *expressio unis est exclusio alterius* instructs that where a law expressly describes a particular situation to which it shall apply, what was omitted or excluded was intended to be omitted or excluded; LBP-13-9, 78 NRC 67-68 (2013)
- Crow Butte Resources, Inc.* (Marsland Expansion Area), LBP-13-6, 77 NRC 253, 266, 267 (2013)  
licensing strategy whereby applicant seeks initial in situ recovery licensing authorization to mine a particular area on which a central processing plant is located, followed thereafter by additional license amendments to cover ISR activities on contiguous or nearby areas, has been employed previously under the agency's ISR facility licensing regime; LBP-13-10, 78 NRC 146 (2013)
- Crow Butte Resources, Inc.* (Marsland Expansion Area), LBP-13-6, 77 NRC 253, 286-88 (2013)  
contention alleging a failure to protect historic and cultural resources is admissible; LBP-13-9, 78 NRC 51 n.53 (2013)
- Crow Butte Resources, Inc.* (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 553 (2009)  
to define the scope of an admitted contention properly, boards should specify which bases are admitted; LBP-13-10, 78 NRC 138 (2013)
- Curators of the University of Missouri* (TRUMP-S Project), CLI-95-1, 41 NRC 71, 98 (1995)  
NUREGs and Regulatory Guides, by their very nature, serve merely as guidance and cannot prescribe requirements; LBP-13-13, 78 NRC 284 n.168 (2013)
- Curators of the University of Missouri* (TRUMP-S Project), CLI-95-1, 41 NRC 71, 121-22 (1995)  
primary responsibility to address and comply with AEA safety-related requirements resides with a license applicant, and so, that application, not the Staff's application review, is the focus of any safety-related contentions; LBP-13-10, 78 NRC 132 n.7 (2013)
- Curators of the University of Missouri* (TRUMP-S Project), CLI-95-8, 41 NRC 386, 396 (1995)  
because primary responsibility to address and comply with AEA safety-related requirements resides with a license applicant, that application, not the Staff's application review, is the focus of any safety-related contentions and thus the migration tenet does not apply; LBP-13-10, 78 NRC 132 n.7 (2013)
- Department of Transportation v. Public Citizen*, 541 U.S. 752, 767 (2004)  
rule of reason is inherent in NEPA and its implementing regulations; LBP-13-13, 78 NRC 452 n.1417 (2013)
- Detroit Edison Co.* (Fermi Nuclear Power Plant, Unit 3), LBP-12-23, 76 NRC 445, 470-71 (2012)  
boards may construe an admitted contention contesting the environmental report as a challenge to a subsequently issued draft or final environmental impact statement without the need for intervenors to file a new or amended contention; LBP-13-9, 78 NRC 47 n.27 (2013)
- contentions of adequacy may migrate into contentions of omission; LBP-13-10, 78 NRC 133 (2013)
- Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-08-17, 68 NRC 231, 233 (2008)  
rules on contention admissibility are strict by design; LBP-13-8, 78 NRC 9 (2013)
- Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 358 (2001)  
because petitioner fails to address information in the draft supplemental environmental impact statement and generic EIS that is relevant to the issue it raises, the board must reject arguments relating to liquid waste disposal; LBP-13-9, 78 NRC 94 (2013)

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boards must reject intervenors' arguments that fail to specifically address the draft environmental impact statement; LBP-13-9, 78 NRC 56 (2013)

contention that the draft environmental impact statement fails to include a reviewable plan for disposal of 11e(2) byproduct material is inadmissible; LBP-13-9, 78 NRC 70 (2013)

intervenor must do more than submit bald or conclusory allegations of a dispute with the applicant; LBP-13-9, 78 NRC 82 n.304 (2013)

*Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 359-60 (2001)

bald allegations do not suffice to support contention admissibility; LBP-13-8, 78 NRC 14 (2013)

*Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-04-36, 60 NRC 631, 636 (2004)

contentions that fail to comply with any of the pleading requirements may not be admitted; LBP-13-8, 78 NRC 9 (2013)

*Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-05-24, 62 NRC 551, 559-60 (2005)

boards are not empowered to reword the clear language of the Commission's regulations; LBP-13-12, 78 NRC 243 (2013)

even a properly supported request for a waiver cannot be granted when it seeks to exempt circumstances that are common to a large class of facilities rather than unique; LBP-13-12, 78 NRC 243 (2013)

rule waiver case law that reflects the four-part test that NRC has long used is compiled; CLI-13-7, 78 NRC 207 (2013)

*Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-05-24, 62 NRC 551, 559-60 & nn.29-34 (2005)

rule waiver petitions are reviewed under section 2.335 as well as case law; CLI-13-7, 78 NRC 205 (2013)

*Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-05-24, 62 NRC 551, 560 (2005)

rule waiver petitioners must demonstrate that applying the rule would not serve its intended purpose; CLI-13-7, 78 NRC 205 n.19 (2013)

*Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-29, 60 NRC 417, 424 (2004)

guidance documents are, by nature, only advisory and need not apply in all situations and do not themselves impose legal requirements on licensees; LBP-13-13, 78 NRC 284 n.168 (2013)

*Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278 (2002)

contention alleging that license renewal application fails to consider plutonium fuel use, which would place it outside the current licensing basis, is inadmissible; LBP-13-8, 78 NRC 23 (2013)

*Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278, 292 (2002)

inquiry into future, inchoate plans of licensee would generally invite petitioners in license renewal cases to raise safety issues involving a myriad of possible future license amendments; LBP-13-8, 78 NRC 23 (2013)

*Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278, 293 (2002)

if licensee endeavors to use MOX fuel during the license renewal term, it will need to seek a license amendment; LBP-13-8, 78 NRC 23 (2013)

nothing in NRC case law or regulations suggests that license renewal is an occasion for far-reaching speculation about unimplemented and uncertain plans; LBP-13-8, 78 NRC 23 (2013)

*Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278, 295 (2002)

to bring NEPA into play, a possible future action must at least constitute a proposal pending before the agency (i.e., ripeness), and must be in some way interrelated with the action that the agency is actively considering (i.e., nexus); LBP-13-10, 78 NRC 145-46 (2013)

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- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2),  
CLI-02-14, 55 NRC 278, 297 (2002)  
when developing an environmental impact statement, an agency must consider the impact of other proposed projects only if the projects are so interdependent that it would be unwise or irrational to complete one without the other; LBP-13-10, 78 NRC 147 (2013)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2),  
CLI-02-17, 56 NRC 1, 4 (2002)  
severe accident mitigation alternatives analysis evaluates the degree to which specific additional mitigation measures may reduce the risk of various accident scenarios on a site-specific basis; LBP-13-13, 78 NRC 286 (2013)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2),  
CLI-02-17, 56 NRC 1, 5 (2002)  
performed under NEPA, a severe accident mitigation alternatives analysis evaluates the degree to which specific additional mitigation measures may reduce the probability or consequences of various accident scenarios on a site-specific basis; LBP-13-13, 78 NRC 452-53 (2013)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2),  
CLI-02-17, 56 NRC 1, 12 (2002)  
question of material impacts hinges upon whether a severe accident mitigation alternative may be cost-beneficial to implement; LBP-13-13, 78 NRC 287 (2013)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2),  
CLI-02-28, 56 NRC 373, 382 (2002)  
although contention contesting applicant's environmental report generally may be viewed as a challenge to NRC Staff's subsequent draft environmental impact statement, new claims must be raised in a new or amended contention; LBP-13-10, 78 NRC 134 (2013)  
new or amended contentions related to portions of the draft environmental impact statement that differ from the environmental report must be timely filed under section 2.309(c) and meet the contention admissibility standards of section 2.309(f)(1) to be admitted; LBP-13-9, 78 NRC 47 n.29 (2013)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2),  
CLI-02-28, 56 NRC 373, 382-83 (2002)  
issues framed in contentions challenging an application generally encompass two categories alleging an informational or analytical omission from the application and/or alleging that information/analysis in the application is inadequate (as opposed to missing); LBP-13-10, 78 NRC 132 n.6 (2013)  
there is a difference between contentions that merely allege an omission of information and those that challenge substantively and specifically how particular information has been discussed in a license application; LBP-13-9, 78 NRC 47-48 n.31 (2013)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2),  
CLI-02-28, 56 NRC 373, 383 (2002)  
admitted contentions of omission may be rendered moot by subsequent license-related documents filed by the NRC Staff that address the alleged omission; LBP-13-9, 78 NRC 48 (2013)  
if a contention is rendered moot by information supplied by applicant or considered by Staff in a draft EIS, the party that filed the original contention of omission must file a new or amended contention if it wishes to challenge the adequacy or sufficiency of the NRC Staff's treatment of the relevant issue; LBP-13-9, 78 NRC 48 n.33 (2013)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2),  
CLI-02-28, 56 NRC 373, 383 n.45 (2002)  
based on its language, a contention can be characterized as a contention of omission, a contention of adequacy, or both; LBP-13-9, 78 NRC 47-48 n.31 (2013)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2),  
CLI-03-17, 58 NRC 419, 431 (2003)  
NRC adjudicatory hearings are not environmental impact statement editing sessions wherein the board sits to parse and fine-tune EISs; LBP-13-13, 78 NRC 286 n.183 (2013)  
severe accident mitigation alternatives analyses, as issues of mitigation, need only be discussed in sufficient detail to ensure that environmental consequences of the proposed project have been fairly evaluated; LBP-13-13, 78 NRC 453 (2013)

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to be successful, intervenors must demonstrate with adequate support that NRC Staff failed to take a hard look at important environmental questions or failed to provide a reasonable analysis; LBP-13-13, 78 NRC 286 (2013)

*Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 NRC 328, 345 (1999) challenges to NRC rules and regulations are generally prohibited, with limited exceptions, in view of expanding opportunities for participation in Commission rulemaking proceedings and increased emphasis on rulemaking proceedings as the appropriate forum for settling basic policy issues; CLI-13-7, 78 NRC 207 n.32 (2013)

*Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1048 (1983) applicant has the burden of proof on safety issues in a licensing proceeding; LBP-13-13, 78 NRC 279 (2013)

*Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1049 (1983) although applicant carries the burden of proof on safety issues, NRC Staff has the overall burden of complying with NEPA; LBP-13-13, 78 NRC 279 (2013) intervenors are not permitted to wait until information reappears in the draft environmental impact statement to file their contentions; LBP-13-9, 78 NRC 60 (2013)

*Earth Island Institute v. U.S. Forest Service*, 351 F.3d 1291, 1306-07 (9th Cir. 2006) agencies may not undertake a piecemeal review of environmental impacts; LBP-13-9, 78 NRC 83 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 315-16 (2010) environmental impact statements are not intended to be research documents, reflecting the frontiers of scientific methodology, studies, and data; LBP-13-13, 78 NRC 452, 505 (2013)

NEPA allows agencies to select their own methodology as long as that methodology is reasonable; LBP-13-13, 78 NRC 452 (2013)

NEPA should be construed in the light of reason if it is not to demand virtually infinite study and resources; LBP-13-13, 78 NRC 452 (2013) there will always be more data that could be gathered, but agencies must have some discretion to draw the line and move forward with decisionmaking; LBP-13-13, 78 NRC 452 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 316 (2010) NEPA allows agencies to select their own methodology as long as that methodology is reasonable; LBP-13-13, 78 NRC 540 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-22, 72 NRC 202, 208-09 (2010) to satisfy its obligations under NEPA the final supplemental environmental impact statement need only explain any known shortcomings in available methodology, disclose incomplete or unavailable information and significant uncertainties, and make a reasoned evaluation of whether and to what extent these or other considerations credibly could alter the severe accident mitigation alternatives analysis conclusions; LBP-13-13, 78 NRC 453 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39 (2012) environmental analysis of severe accidents is designated as a Category 2 site-specific issue for license renewal, and therefore the SAMA analysis normally is subject to challenge in a license renewal adjudicatory proceeding; CLI-13-7, 78 NRC 211 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39, 57 (2012) document's unavailability does not render NRC Staff's or applicant's reliance on the NUREG-1150 decontamination cost values altogether unreasonable under NEPA; LBP-13-13, 78 NRC 472 (2013) to litigate SAMA-related issues requires demonstration of potentially significant deficiency in the SAMA analysis that credibly could render the SAMA analysis unreasonable under NEPA standards; CLI-13-7, 78 NRC 215-16 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39, 61 (2012) despite the ability of both NRC Staff and applicant to present evidence and witnesses on environmental issues, the ultimate issue in determining NEPA compliance is the adequacy of the Staff's environmental review, not the applicant's environmental report; LBP-13-13, 78 NRC 279 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-6, 75 NRC 352, 364-65 (2012) any interested person may petition the Commission to issue, amend, or rescind any regulation; CLI-13-7, 78 NRC 208 n.42 (2013)

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to challenge generic application of a rule, petitioner seeking waiver must show that there is something extraordinary about the subject matter of the proceeding such that the rule should not apply; CLI-13-7, 78 NRC 207 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-6, 75 NRC 352, 365 (2012) waiver of a rule pertaining to the agency's environmental responsibilities is possible; CLI-13-7, 78 NRC 209 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-10, 75 NRC 479, 497 (2012) later revisions to license renewal application that bring the plant into compliance with the GALL-2 have generally been deemed acceptable; LBP-13-13, 78 NRC 284 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 706 (2012) performed under NEPA, a severe accident mitigation alternatives analysis evaluates the degree to which specific additional mitigation measures may reduce the probability or consequences of various accident scenarios on a site-specific basis; LBP-13-13, 78 NRC 286, 452-53 (2013) severe accident mitigation alternatives analysis is not part of the agency's safety review for license renewal under the Atomic Energy Act, but is instead a mitigation alternatives analysis conducted pursuant to the National Environmental Policy Act; LBP-13-8, 78 NRC 29 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 706-07 (2012) severe accident mitigation alternatives analysis is a quantitative cost-benefit analysis, comparing the costs of implementing a mitigation measure against the value of its benefit; LBP-13-13, 78 NRC 453 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 707 (2012) severe accident mitigation alternatives analysis is a quantitative cost-benefit analysis, comparing the costs of a mitigation measure against its benefits; LBP-13-13, 78 NRC 286 (2013) severe accident mitigation alternatives analysis takes into account probabilities of accident scenarios, so that the analysis ultimately assesses whether and to what extent the probability-weighted consequences of the analyzed severe accident sequences would decrease if a specific mitigation alternative were implemented; LBP-13-13, 78 NRC 286, 453 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 708 (2012) as a NEPA analysis, the severe accident mitigation alternatives analysis is not based on either the best-case or the worst-case accident scenarios, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios; LBP-13-13, 78 NRC 286-87, 453, 470 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 714 (2012) contentions challenging a severe accident mitigation alternatives analysis must identify a deficiency that plausibly could alter the overall result of the analysis in a material way; LBP-13-13, 78 NRC 287 (2013)

when a board is called upon to assess a severe accident mitigation alternatives analysis, the question is not whether more or different analysis can be done; LBP-13-13, 78 NRC 287, 453, 474 (2013)

*Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 724 (2012) severe accident mitigation alternatives analysis evaluation is governed by the rule of reason and alternatives must be bounded by some notion of feasibility; LBP-13-13, 78 NRC 287, 454 (2013)

*Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-07-3, 65 NRC 13, 17, 20 (2007) challenges to Category 1 findings based on new and significant information require a waiver of 10 C.F.R. Part 51, Subpart A, Appendix B, in order to be litigated in a license renewal adjudication; CLI-13-7, 78 NRC 203 (2013)

*Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-07-3, 65 NRC 13, 20-21 (2007) any interested person may petition the Commission to issue, amend, or rescind any regulation; CLI-13-7, 78 NRC 208 n.42 (2013) rule waiver would be necessary to litigate the issue of potentially new and significant information pertaining to bird collisions in an adjudicatory proceeding; CLI-13-7, 78 NRC 213 n.73 (2013)

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- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-07-3, 65 NRC 13, 21 (2007)  
adjudicating Category 1 issues site by site based merely on a claim of new and significant information, would defeat the purpose of resolving generic issues in a generic EIS; CLI-13-7, 78 NRC 216 n.94 (2013)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-07-3, 65 NRC 13, 22 (2007)  
NRC rules provide a mechanism for supplementing an original NEPA analysis, but the rules do not guarantee a hearing nor is a hearing necessary to satisfy NRC's NEPA obligations; CLI-13-7, 78 NRC 211 n.62 (2013)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 36 (2010)  
commitment to implement an aging management plan consistent with the GALL Report is an acceptable method for compliance with 10 C.F.R. 54.21(c)(1)(iii); LBP-13-13, 78 NRC 283, 290, 386 (2013)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 37 (2010)  
although commitment to implement an aging management plan consistent with the GALL Report is an acceptable method for compliance with 10 C.F.R. 54.21(c)(1)(iii), such a commitment does not absolve the applicant from demonstrating, prior to issuance of a renewed license, that its aging management plan is indeed consistent with the GALL Report; LBP-13-13, 78 NRC 283, 290, 334, 380 (2013)  
incorporation by reference of the applicable section of the GALL Report is permissible, but applicant must also provide sufficient plant-specific information to demonstrate that its aging management plan will be designed and implemented consistent with the GALL Report; LBP-13-13, 78 NRC 381 (2013)  
license renewal applicant must demonstrate, not just promise, consistency with the GALL Report; LBP-13-13, 78 NRC 324 (2013)  
license renewal applicant must present an aging management plan with sufficient information that NRC will be able to draw its own independent conclusion as to whether the applicant's programs are in fact consistent with the GALL Report; LBP-13-13, 78 NRC 283, 290, 324, 380 (2013)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 38 (2010)  
NRC Staff's independent finding of license renewal applicant's consistency with GALL does not prevent the board from reviewing the substance of the applicant's commitments, and exploring deficiencies alleged by intervenors in its proceedings; LBP-13-13, 78 NRC 283 (2013)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 806 (2005), aff'd, *Environmental Law and Policy Center v. NRC*, 470 F.3d 676 (7th Cir. 2006)  
alternatives might not be feasible for a variety of reasons, including a failure of an alternative to meet the project's purpose and need; LBP-13-9, 78 NRC 88 n.354 (2013)
- Exelon Generation Co., LLC* (Limerick Generating Station, Units 1 and 2), CLI-12-19, 76 NRC 377, 386 (2012)  
exception in section 51.53(c)(3)(ii)(L) operates as the functional equivalent of a Category 1 designation for Limerick and similarly situated plants for which SAMAs were already considered in an environmental impact statement or environmental assessment; CLI-13-7, 78 NRC 212 (2013)
- Exelon Generation Co., LLC* (Limerick Generating Station, Units 1 and 2), CLI-12-19, 76 NRC 377, 388 (2012)  
waiver of a rule pertaining to the agency's environmental responsibilities is possible; CLI-13-7, 78 NRC 209 (2013)

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- Exelon Generation Co., LLC* (Limerick Generating Station, Units 1 and 2), CLI-13-7, 78 NRC 199, 206-07 (2013)  
waivers of NRC regulations may be granted in extraordinary situations where special circumstances can be demonstrated; LBP-13-12, 78 NRC 243 (2013)
- Exelon Nuclear Texas Holdings, LLC* (Victoria County Station Site), LBP-11-16, 73 NRC 645, 690-91 (2011)  
under the NEPA rule of reason, NRC's environmental analysis need only consider environmental impacts that are reasonably foreseeable, and need not consider remote and speculative scenarios; LBP-13-13, 78 NRC 286 (2013)
- Fansteel, Inc.* (Muskegee, Oklahoma Site), CLI-03-13, 58 NRC 195, 203 (2003)  
boards may appropriately view petitioner's supporting information in a light favorable to the petitioner, but neither mere speculation nor bare or conclusory assertions, even by an expert, will suffice to allow admission of a proffered contention; LBP-13-10, 78 NRC 148 (2013)  
contentions based on bare assertions and speculation will not be admitted; LBP-13-8, 78 NRC 19 (2013)
- Fewell Geotechnical Engineering, Ltd.* (Thomas E. Murray, Radiographer), CLI-92-5, 35 NRC 83, 84 (1992)  
*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558-59 (2013)
- FirstEnergy Nuclear Operating Co.* (Davis-Besse Nuclear Power Station, Unit 1), CLI-12-8, 75 NRC 393, 406 (2012)  
because the severe accident mitigation alternatives analysis is largely quantitative, resting on inputs used in computer modeling, it will always be possible to propose that the analysis use one or more other inputs; LBP-13-13, 78 NRC 453 (2013)
- FirstEnergy Nuclear Operating Co.* (Davis-Besse Nuclear Power Station, Unit 1), CLI-12-8, 75 NRC 393, 406-18 (2012)  
petitioner may raise a SAMA-related contention in a license renewal adjudication if it satisfies the general contention admissibility criteria in section 2.309(f)(1); CLI-13-7, 78 NRC 211 (2013)
- Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit 2), CLI-81-12, 13 NRC 838, 844 (1981)  
containments must be designed to remain essentially leaktight during postulated accidents; LBP-13-8, 78 NRC 30-31 (2013)
- Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 7 (2001)  
issues and concerns involved in an extended 20 years of operation are not identical to the issues reviewed when a reactor facility is first built and licensed; LBP-13-13, 78 NRC 280 (2013)
- Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 8 (2001)  
integrated plant assessments require that applicants demonstrate that systems, structures, and components will continue to perform their intended functions during the period of extended operation; LBP-13-13, 78 NRC 280 (2013)
- it is unnecessary to include in license renewal review all those issues already monitored, reviewed, and commonly resolved as needed by ongoing regulatory oversight; LBP-13-8, 78 NRC 12 (2013)  
license renewal applicants are required to reassess any time-limited aging analyses that were based upon a particular time period, such as an assumed service life of a specific number of years or some period of operation defined by the original 40-year license term; LBP-13-13, 78 NRC 280 (2013)
- license renewal safety reviews are generally limited to aging-related issues because NRC recognizes that it has the ongoing responsibility to oversee the safety and security of operating nuclear reactors, and maintains an aggressive and ongoing program to oversee plant operation; LBP-13-13, 78 NRC 281 (2013)
- NRC has the ongoing responsibility to oversee the safety and security of operating nuclear reactors and maintains an aggressive and ongoing program to oversee plant operation and to maintain compliance with the current licensing basis; LBP-13-8, 78 NRC 12 (2013)
- reassessment of time-limited aging analyses must show that the earlier analysis will remain valid for the extended operation period or modify and extend the analysis to apply to a longer term, such as

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60 years, or otherwise demonstrate that the effects of aging will be adequately managed in the renewal term; LBP-13-13, 78 NRC 280-81 (2013)

*Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 9 (2001)

current licensing basis consists of license requirements, including license conditions and technical specifications, plant-specific design basis information, and any orders, exemptions, and licensee commitments that are part of the docket for the plant's license; LBP-13-13, 78 NRC 281 n.149 (2013)

current licensing basis encompasses the various Commission requirements applicable to a specific plant that are in effect at the time of the license renewal application; LBP-13-13, 78 NRC 281 n.149 (2013)

for active structures, systems, and components, NRC chose to exempt from license renewal, challenges to a plant's operational activities covered by its current licensing basis; LBP-13-13, 78 NRC 281 (2013)

in establishing its license renewal process, NRC did not believe it necessary or appropriate to throw open the full gamut of provisions in a plant's current licensing basis to reanalysis because those are effectively addressed and maintained by ongoing agency oversight, review, and enforcement; LBP-13-8, 78 NRC 13 (2013); LBP-13-13, 78 NRC 281 (2013)

*Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 11 (2001)

to meet its environmental review burden in license renewal cases, NRC Staff developed the generic environmental impact statement, which contains findings that apply to all nuclear power plants and are codified in Appendix B of Subpart A of 10 C.F.R. Part 51; LBP-13-13, 78 NRC 285 (2013)

*Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 13 (2001)

in the context of license renewal, NRC's Atomic Energy Act review under Part 54 does not compromise or limit the National Environmental Policy Act; LBP-13-8, 78 NRC 13 n.18 (2013); LBP-13-13, 78 NRC 271 n.67, 284 (2013)

*Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 16 (2001)

challenges to the generic environmental impact statement's generic determinations amount to attacks on NRC regulations and are not within the scope of license renewal proceedings; LBP-13-8, 78 NRC 34 (2013)

*Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-01-6, 53 NRC 138, 150 (2001), *aff'd on other grounds*, CLI-01-17, 54 NRC 3 (2001)

proximity presumption applies in reactor operating license renewal proceedings; LBP-13-8, 78 NRC 7 (2013)

*Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 6 and 7), LBP-11-6, 73 NRC 149, 199-200 (2011)

based on its language, a contention can be characterized as a contention of omission, a contention of adequacy, or both; LBP-13-9, 78 NRC 47-48 (2013)

*Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 6 and 7), LBP-11-6, 73 NRC 149, 200 (2011)

two primary types of contentions are contentions of omission and contentions of adequacy; LBP-13-9, 78 NRC 47 n.30 (2013)

*Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 6 and 7), LBP-11-6, 73 NRC 149, 200 n.53 (2011)

contention of omission is one alleging that an application suffers from an improper omission, whereas a contention of adequacy raises a specific substantive challenge to how particular information or issues have been discussed in the application; LBP-13-9, 78 NRC 47 n.30 (2013)

*Fuel Safe Washington v. Federal Energy Regulatory Commission*, 389 F.3d 1313, 1323 (10th Cir. 2004) agency need not analyze environmental consequences of alternatives it has in good faith rejected as too remote, speculative, or impractical or ineffective; LBP-13-9, 78 NRC 88 n.353 (2013)

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- Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111, 115 (1995)  
organizations may base standing on either immediate or threatened injury to its organizational interests or to the interests of identified members; LBP-13-8, 78 NRC 7 (2013)  
to derive standing from a member, organizations must demonstrate that the individual member has standing to participate and has authorized the organization to represent his or her interests; LBP-13-8, 78 NRC 7 (2013)
- Half Moon Bay Fisherman's Marketing Association v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988)  
establishment of baseline conditions of the affected environment is a fundamental requirement of the National Environmental Policy Act process; LBP-13-9, 78 NRC 52 (2013)
- Honeywell International, Inc.* (Metropolis Works Uranium Conversion Facility), LBP-12-6, 75 NRC 256, 270 (2012)  
it is not the role of licensing boards to review and reconsider the wisdom of the Commission's regulations; LBP-13-12, 78 NRC 242 (2013)
- Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 14 (1999)  
recirculation of the draft environmental impact statement is required only when the information presents a seriously different picture of the environmental impacts; LBP-13-9, 78 NRC 64 (2013)
- Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 17 (1999)  
future actions on which the draft environmental impact statement purports to rely in its analysis of impacts constitute a license condition, the use of which is permitted in NEPA documents; LBP-13-9, 78 NRC 56 (2013)
- Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 53 (2001)  
to the extent that any environmental findings by the presiding officer or the Commission differ from those in the final environmental impact statement, the FEIS is deemed modified by the decision; LBP-13-13, 78 NRC 524-25 (2013)
- Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-04-39, 60 NRC 657, 659 (2004)  
NRC Staff need not recirculate a supplemental NEPA document every time new information becomes available; LBP-13-9, 78 NRC 63, 64 (2013)
- Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), CLI-06-29, 64 NRC 417, 427 (2006)  
draft environmental impact statements need not contain more information on mitigation measures than a description of the mitigation measures on which the NRC relies and an explanation of the limiting effect of the mitigation measures on environmental impacts; LBP-13-9, 78 NRC 66 (2013)
- Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), LBP-06-19, 64 NRC 53 (2006)  
hard look at the environmental justice aspects of relicensing having been taken, the Commission, without additional Staff action, can now with respect to the EJ issue, make an informed decision whether to grant the requested license; LBP-13-13, 78 NRC 544 n.2107 (2013)
- Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), LBP-06-19, 64 NRC 53, 69 n.11 (2006)  
adjudicatory record, board decision, and any Commission appellate decisions become, in effect, part of the final environmental impact statement; LBP-13-13, 78 NRC 543 (2013)  
NRC Staff typically prepares the record of decision but when a hearing is held, the board's initial decision constitutes the record of decision as to those issues that were litigated during the hearing; LBP-13-13, 78 NRC 525 (2013)
- In re Aiken County*, 725 F.3d 255, 267 (D.C. Cir. 2013), *reh'g en banc denied* (Oct. 28, 2013)  
court grants writ of mandamus directing NRC to promptly resume the licensing process for the high-level radioactive waste repository construction authorization application unless and until Congress authoritatively says otherwise or there are no appropriated funds remaining; CLI-13-8, 78 NRC 222 (2013)
- Izaak Walton League of America v. Marsh*, 655 F.2d 346, 377 (D.C. Cir. 1981)  
NEPA does not require agencies to resolve all uncertainties, including uncertainties associated with the NUREG-1150 values used in the severe accident mitigation alternatives analysis; LBP-13-13, 78 NRC 473 (2013)

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- Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), CLI-96-2, 43 NRC 13 (1996)  
controversy often ends during the pendency of appeals before the Commission or the Appeal Board;  
CLI-13-9, 78 NRC 558 (2013)
- Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), CLI-96-2, 43 NRC 13, 15 (1996)  
Commission decision to vacate an unreviewed board decision does not intimate any opinion on the  
soundness of the board's decision; CLI-13-9, 78 NRC 559 n.31 (2013)
- Klamath-Siskiyou Wildlands Center v. Bureau of Land Management*, 387 F.3d 989, 1001 (9th Cir. 2004)  
permissive "may" language of 40 C.F.R. 1508.25(a)(3) affords an agency more discretion in making a  
choice about whether a single EIS is the best way to assess similar actions; LBP-13-10, 78 NRC  
149 n.17 (2013)
- Kleppe v. Sierra Club*, 427 U.S. 390 (1976)  
agencies must make sure that the proposal that is the subject of an environmental impact statement is  
properly defined; LBP-13-10, 78 NRC 144 (2013)
- Kleppe v. Sierra Club*, 427 U.S. 390, 405-06 (1976)  
under NEPA § 102(2)(C), which requires that an agency create an EIS, the moment at which an  
agency must have a final statement ready is the time at which it makes a recommendation or report  
on a proposal for federal action; LBP-13-10, 78 NRC 145 (2013)
- Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976)  
when several proposals for actions that will have cumulative or synergistic environmental impact upon  
a region are pending concurrently before an agency, their environmental consequences must be  
considered together; LBP-13-10, 78 NRC 145 (2013)
- Kleppe v. Sierra Club*, 427 U.S. 390, 410 & n.20 (1976)  
environmental impact statements should be issued to include other related actions only when those  
related actions have been formally proposed and are pending before the relevant agency; LBP-13-10,  
78 NRC 145 (2013)
- NEPA does not require an agency to consider the possible environmental impacts of less imminent  
actions when preparing the impact statement on proposed actions; LBP-13-10, 78 NRC 145 (2013)
- Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 739 (3d Cir. 1989)  
only if the harm in question is so remote and speculative as to reduce the effective probability of its  
occurrence to zero may the agency dispense with the consequences portion of its environmental  
analysis; LBP-13-13, 78 NRC 542 (2013)
- severe accident mitigation alternatives analysis must necessarily be site specific because the potential  
consequences of a severe accident will largely be the product of the location of the plant;  
LBP-13-13, 78 NRC 453, 465-66 (2013)
- Long Island Lighting Co.* (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 836 (1973)  
NEPA's hard-look requirement is tempered by a rule of reason; LBP-13-13, 78 NRC 452 (2013)  
NRC need only address reasonably foreseeable impacts, not those that are remote and speculative or  
inconsequentially small; LBP-13-13, 78 NRC 452 (2013)
- Long Island Lighting Co.* (Shoreham Nuclear Power Station), CLI-85-1, 21 NRC 275, 280 (1985)  
rule waiver petitioners face a substantial burden; CLI-13-7, 78 NRC 208 (2013)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77 (1998)  
hard look at the environmental justice aspects of relicensing having been taken, the Commission,  
without additional Staff action, can now with respect to the EJ issue, make an informed decision  
whether to grant the requested license; LBP-13-13, 78 NRC 544 n.2107 (2013)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 84 (1998)  
admitted contentions challenging applicant's environmental report may, in appropriate circumstances,  
function as challenges to similar portions of NRC Staff's environmental impact statement; LBP-13-9,  
78 NRC 46 (2013)
- safety matters generally need to be raised, relative to an admitted safety contention, in the context of  
the merits disposition of the already admitted safety contention or, in the case of a new issue, as a  
wholly new safety contention; LBP-13-10, 78 NRC 132-33 (2013)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998)  
NEPA does not mandate substantive results, but rather, imposes procedural obligations on federal  
agencies, requiring them to take a hard look at the environmental impacts of a proposed action and  
reasonable alternatives to that action; LBP-13-13, 78 NRC 451-52, 524 (2013)

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- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 88 (1998)  
taking a hard look at environmental impacts fosters both informed decisionmaking and informed public participation; LBP-13-13, 78 NRC 452 (2013)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 89 (1998)  
adjudicatory record, board decision, and any Commission appellate decisions become, in effect, part of the final environmental impact statement; LBP-13-13, 78 NRC 524, 543 (2013)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 100 (1998)  
NRC's environmental justice goal is to identify and adequately weigh, or mitigate, effects on low-income and minority communities that become apparent only by considering factors peculiar to those communities; LBP-13-13, 78 NRC 541 (2013)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-5, 47 NRC 113 (1998)  
controversy often ends during the pendency of appeals before the Commission or the Appeal Board; CLI-13-9, 78 NRC 558 (2013)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-5, 47 NRC 113, 114 (1998)  
Commission decision to vacate an unreviewed board decision does not intimate any opinion on the soundness of the board's decision; CLI-13-9, 78 NRC 559 n.31 (2013)  
*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558 (2013)  
unreviewed board decisions are not binding on future boards; CLI-13-10, 78 NRC 569 n.42 (2013)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-5, 47 NRC 113, 114-15 (1998)  
with license's withdrawal of license amendment request, the proceeding is moot; CLI-13-10, 78 NRC 568 (2013)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), LBP-96-25, 44 NRC 331, 341 (1996)  
environmental impact statements serve as an environmental full disclosure law providing agency decisionmakers, as well as the President, the Congress, the Council on Environmental Quality, and the public with the environmental cost-benefit information that Congress thought they should have about each qualifying federal action; LBP-13-13, 78 NRC 285 n.175 (2013)
- Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-25, 60 NRC 223, 225 (2004)  
new arguments may not be raised for the first time in a reply brief; LBP-13-12, 78 NRC 243 (2013)
- Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-05-20, 62 NRC 523, 536 (2005)  
NEPA does not call for certainty or precision, but an estimate of anticipated (not unduly speculative) impacts; LBP-13-13, 78 NRC 505 (2013)
- Louisiana Energy Services, L.P.* (National Enrichment Facility), LBP-06-8, 63 NRC 241, 258-59 (2006)  
NEPA's hard-look requirement is tempered by a rule of reason; LBP-13-13, 78 NRC 452 (2013)
- Louisiana Energy Services, L.P.* (National Enrichment Facility), LBP-06-8, 63 NRC 241, 260 (2006)  
adjudicatory record, board decision, and any Commission appellate decisions become, in effect, part of the final environmental impact statement; LBP-13-13, 78 NRC 543 (2013)  
hard look at the environmental justice aspects of relicensing having been taken, the Commission, without additional Staff action, can now with respect to the EJ issue, make an informed decision whether to grant the requested license; LBP-13-13, 78 NRC 544 n.2107 (2013)  
NRC Staff typically prepares the record of decision but when a hearing is held, the board's initial decision constitutes the record of decision as to those issues that were litigated during the hearing; LBP-13-13, 78 NRC 525 (2013)
- Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 371 (1989)  
taking a hard look at environmental impacts ensures that the agency does not act upon incomplete information, only to regret its decision after it is too late to correct; LBP-13-13, 78 NRC 452 (2013)
- Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 373-74 (1989)  
NRC is required under NEPA to consider new and significant information in its environmental analyses; CLI-13-7, 78 NRC 210 (2013)
- Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989)  
if there remains major federal action to occur, and if the new information is sufficient to show that the remaining action will affect the quality of the human environment in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared; CLI-13-7, 78 NRC 211 n.59 (2013)

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- NRC has a continuing duty to take a hard look at new and significant information for each major federal action to be taken; CLI-13-7, 78 NRC 216 (2013)
- NRC Staff will incorporate any new SAMA-related information that it finds to be significant in the final supplemental EIS; CLI-13-7, 78 NRC 217 (2013)
- Massachusetts v. NRC*, 708 F.3d 63, 74 (1st Cir. 2013)
- NRC will consider all comments on the draft supplemental EIS regardless of whether the comment is directed to impacts in Category 1 or 2; CLI-13-7, 78 NRC 216 n.96 (2013)
- Massachusetts v. NRC*, 708 F.3d 63, 78 (1st Cir. 2013)
- NRC rules provide a mechanism for supplementing an original NEPA analysis, but the rules do not guarantee a hearing nor is a hearing necessary to satisfy NRC's NEPA obligations; CLI-13-7, 78 NRC 211 n.62 (2013)
- Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-80-16, 11 NRC 674, 675 (1980)
- NRC case law has given meaning to the "special circumstances" requirement for rule waiver; CLI-13-7, 78 NRC 207 (2013)
- Murphy v. Hunt*, 455 U.S. 478, 481 (1982)
- cases will be moot when the issues are no longer live, or the parties lack a cognizable interest in the outcome; CLI-13-9, 78 NRC 557 (2013)
- National Federation of Federal Employees v. Federal Labor Relations Authority*, 412 F.3d 119 (D.C. Cir. 2005)
- licensing boards may not disregard binding Commission case law; CLI-13-7, 78 NRC 205 n.19 (2013)
- National Whistleblower Center v. NRC*, 208 F.3d 256, 262 (D.C. Cir. 2002)
- NRC possesses the authority to change its procedures on a case-by-case basis; CLI-13-8, 78 NRC 233 n.68 (2013)
- Natural Resources Defense Council, Inc. v. Callaway*, 524 F.2d 79, 92-93 (2d Cir. 1975)
- development and discussion of a wide range of alternatives to any proposed federal action is so important that it is mandated by NEPA when any proposal involves unresolved conflicts concerning alternative uses of available resources, and the requirement is independent of and of wider scope than the duty to file an EIS; LBP-13-13, 78 NRC 285 (2013)
- Natural Resources Defense Council, Inc. v. Environmental Protection Agency*, 643 F.3d 311 (D.C. Cir. 2011)
- guidance documents are, by nature, only advisory and need not apply in all situations and do not themselves impose legal requirements on licensees; LBP-13-13, 78 NRC 283-84 (2013)
- Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1380 (9th Cir. 1998)
- NEPA's hard-look requirement does not allow sweeping generalities about possible effects and risk without a justification as to why more definitive information was not provided; LBP-13-13, 78 NRC 286 (2013)
- New York v. NRC*, 589 F.3d 551, 553 (2d Cir. 2009)
- reissuance of a reactor license is a major federal action requiring an environmental review; LBP-13-13, 78 NRC 272, 285 (2013)
- New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012)
- portions of NRC's NEPA regulations under 10 C.F.R. Part 51 were invalidated; LBP-13-8, 78 NRC 15 (2013)
- New York v. NRC*, 681 F.3d 471, 476 (D.C. Cir. 2012)
- alternatively to preparing an environmental impact statement, NRC can conduct an environmental assessment and make a finding of no significant impact; LBP-13-13, 78 NRC 272 n.79 (2013)
- NEPA requires federal agencies such as NRC to examine and report on the environmental consequences of their actions; LBP-13-13, 78 NRC 272 (2013)
- New York v. NRC*, 681 F.3d 471, 478, 483 (D.C. Cir. 2012)
- NRC's Waste Confidence Rule concerning storage and disposal of high-level waste is vacated and the issue remanded to the Commission to generate either a generic analysis that is forward looking and has enough breadth to support the Commission's conclusions or a site-specific environmental impact statement in all relevant proceedings; LBP-13-13, 78 NRC 270 (2013)

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- New York v. NRC*, 681 F.3d 471, 482 (D.C. Cir. 2012)  
only if the harm in question is so remote and speculative as to reduce the effective probability of its occurrence to zero may the agency dispense with the consequences portion of its environmental analysis; LBP-13-13, 78 NRC 541-42 (2013)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 309-11 (2012)  
later revisions to license renewal application that bring the plant into compliance with GALL-2 have generally been deemed acceptable; LBP-13-13, 78 NRC 284 (2013)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 315 (2012)  
reference to an aging management plan in the GALL Report does not insulate that program from challenge in litigation; LBP-13-13, 78 NRC 283 n.165 (2013)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 322-37 (2012)  
petitioner may raise a SAMA-related contention in a license renewal adjudication if it satisfies the general contention admissibility criteria in section 2.309(f)(1); CLI-13-7, 78 NRC 211 (2013)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 323 (2012)  
contentions admitted for litigation must point to a deficiency in the application, and not merely suggest other ways an analysis could have been done or other details that could have been included; CLI-13-7, 78 NRC 216 n.93 (2013)  
given the quantitative nature of the severe accident mitigation alternatives analysis, where the analysis rests largely on selected inputs, it may always be possible to conceive of alternative and more conservative inputs whose use in the analysis could result in greater estimated accident consequences; LBP-13-13, 78 NRC 453-54 (2013)  
proper question is not whether there are plausible alternative choices for use in a severe accident mitigation alternatives analysis, but whether the analysis that was done is reasonable under NEPA; CLI-13-7, 78 NRC 216 n.93 (2013); LBP-13-13, 78 NRC 287, 454, 474, 486 (2013)  
simply because alternative inputs could be used does not demonstrate that the original inputs to the severe accident mitigation alternatives analysis were unreasonable; LBP-13-13, 78 NRC 454 (2013)  
to be successful, intervenor must point to a deficiency that renders the severe accident mitigation alternatives analysis unreasonable under NEPA; LBP-13-13, 78 NRC 454 (2013)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 341 (2012)  
admissible contention challenging consideration of alternatives must show that a particular alternative was not discussed in the draft environmental impact statement and provide some support that the alternative is reasonable; LBP-13-9, 78 NRC 89 (2013)  
to be successful, intervenors must demonstrate with adequate support that NRC Staff failed to take a hard look at important environmental questions or failed to provide a reasonable analysis; LBP-13-13, 78 NRC 286 (2013)
- North Atlantic Energy Service Corp.* (Seabrook Station, Unit 1), CLI-98-24, 48 NRC 267, 268-69 (1998)  
with licensee's withdrawal of license amendment request, the proceeding is moot; CLI-13-10, 78 NRC 568 (2013)
- North Atlantic Energy Service Corp.* (Seabrook Station, Unit 1), CLI-98-24, 48 NRC 267, 269 (1998)  
*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558-59 (2013)
- Northern Alaska Environmental Center v. Kemphorne*, 457 F.3d 969, 978 (9th Cir. 2006)  
under NEPA, an agency need not discuss alternatives that are infeasible, ineffective, or inconsistent with the basic policy objectives for the management of the area; LBP-13-9, 78 NRC 88 (2013)
- Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-10-27, 72 NRC 481, 484 (2010)  
board admission of a contention charging that a licensee's poor safety culture could undermine its ability to manage aging during the period of extended operations was reversed as not within the scope of license renewal; LBP-13-8, 78 NRC 13 (2013)  
contentions alleging that applicants' handling of past safety issues at the plants demonstrated that applicants could not provide reasonable assurance that they would manage the effects of aging during the license renewal term are inadmissible; LBP-13-8, 78 NRC 21 (2013)

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*Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-10-27, 72 NRC 481, 491 (2010)

contention that licensee's history of managing whistleblower complaints regarding safety issues demonstrates that the plant will not be operated safely during the license renewal term is inadmissible; LBP-13-8, 78 NRC 32 (2013)

*Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-10-27, 72 NRC 481, 492 (2010)

contentions that relate to current operations at a plant, as opposed to how it might operate during the period of extended operation, are inadmissible; LBP-13-8, 78 NRC 33 (2013) if a stakeholder is of the view that immediate action is needed to remedy an ailing safety culture at any facility, then that matter should be brought immediately to the attention of the agency via section 2.206; LBP-13-8, 78 NRC 33 (2013)

*Oncology Services Corp.*, CLI-93-17, 38 NRC 44, 49 (1993)

*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudent matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558-59 (2013)

*Pacific Gas and Electric Co. v. Federal Power Commission*, 506 F.2d 33, 38-39 (D.C. Cir. 1974)

agencies cannot escape their responsibility to present evidence and reasoning supporting their substantive rules by announcing binding precedent in the form of a general statement of policy; LBP-13-13, 78 NRC 528 n.1994 (2013)

*Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC 427, 432 (2011)

board admission of a contention alleging that licensee had a repeated pattern of violations that could undermine licensee's ability to manage aging during the period of extended operations was reversed as not within the scope of license renewal; LBP-13-8, 78 NRC 13 (2013) contentions alleging that applicants' handling of past safety issues at the plants demonstrated that the applicants could not provide reasonable assurance that they would manage the effects of aging during the license renewal term are inadmissible; LBP-13-8, 78 NRC 21 (2013)

*Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC 427, 435 (2011)

contention that licensee's history of managing whistleblower complaints regarding safety issues demonstrates that the plant will not be operated safely during the license renewal term is inadmissible; LBP-13-8, 78 NRC 32 (2013) license renewal should not include a new, broad-scoped inquiry into compliance that is separate from and parallel to ongoing compliance oversight activity; LBP-13-8, 78 NRC 13 (2013)

*Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC 427, 436 (2011)

contention that offers no explanation how its assertions are directly relevant to applicant's ability to manage the effects of aging during the renewal term is inadmissible; LBP-13-8, 78 NRC 32 (2013)

*Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC 427, 436 n.47 (2011)

management integrity contentions are admissible in license renewal proceedings only if they rely on specific supporting information, including references to a serious incident involving shutdown where management responsible for the incident remained in place, a purported climate of reprisals for bringing forward safety issues, and reference to at least one expert in support of the contention; LBP-13-8, 78 NRC 33 (2013)

*Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC 427, 442 (2011)

whether a contention should properly be characterized as a contention of omission or a contention of adequacy and the ramifications of such a designation with regard to contention admissibility are discussed; LBP-13-9, 78 NRC 47 n.30 (2013)

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- Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-12-13, 75 NRC 681, 686 (2012)  
prior to its revision, 10 C.F.R. 2.341(f)(1) required that a referred ruling raise a significant and novel legal or policy issue and necessitate resolution to materially advance the orderly disposition of the proceeding; CLI-13-7, 78 NRC 206 n.25 (2013)
- Pacific Gas and Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-02-23, 56 NRC 230, 237 (2002)  
when a matter is not strictly adjudicatory in nature or otherwise does not fit cleanly within the procedures described in NRC rules of practice, the Commission undertakes a decision as an exercise of its inherent supervisory authority over agency proceedings; CLI-13-8, 78 NRC 224 (2013)
- Pacific Gas and Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-08-1, 67 NRC 1, 13 (2008)  
policies set forth by NEPA prevent NRC Staff from segmenting the disposal issues from the inquiry into whether applicant will be allowed to create 11e(2) byproduct material in the first instance; LBP-13-9, 78 NRC 70 (2013)
- Pa'ina Hawaii, LLC*, CLI-10-18, 72 NRC 56, 74 (2010)  
NEPA's hard-look requirement does not allow sweeping generalities about possible effects and risk without a justification as to why more definitive information was not provided; LBP-13-13, 78 NRC 286, 452 (2013)
- Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681 (1985)  
hard look at the environmental justice aspects of relicensing having been taken, the Commission, without additional Staff action, can now with respect to the EJ issue, make an informed decision whether to grant the requested license; LBP-13-13, 78 NRC 544 n.2107 (2013)  
hearings can provide the public venting that the circulation of an amended environmental impact statement would otherwise provide; LBP-13-13, 78 NRC 525 (2013)
- Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 85 (1974)  
challenges to NRC rules and regulations are generally prohibited with limited exceptions in view of expanding opportunities for participation in Commission rulemaking proceedings and increased emphasis on rulemaking proceedings as the appropriate forum for settling basic policy issues; CLI-13-7, 78 NRC 207 n.32 (2013)
- Power Authority of the State of New York* (James A. FitzPatrick Nuclear Power Plant; Indian Point, Unit 3), LBP-01-4, 53 NRC 121, 127 (2001)  
intervenors are not permitted to wait until information reappears in the draft environmental impact statement to file their contentions; LBP-13-9, 78 NRC 60 (2013)
- Powertech USA, Inc.* (Dewey-Burdock In Situ Uranium Recovery Facility), LBP-13-9, 78 NRC 37, 46-47 (2013)  
contentions of adequacy may migrate into contentions of omission; LBP-13-10, 78 NRC 133 (2013)
- Powertech USA, Inc.* (Dewey-Burdock In Situ Uranium Recovery Facility), LBP-13-9, 78 NRC 37, 47-48 (2013)  
general discussion about contentions of omission and contentions of adequacy is provided; LBP-13-10, 78 NRC 132 n.6 (2013)
- PPL Susquehanna, LLC* (Susquehanna Steam Electric Station, Units 1 and 2), LBP-07-4, 65 NRC 281, 303-04 (2007)  
contention rule is strict by design and does not permit the filing of a vague, unparticularized contention, unsupported by affidavit, expert, or documentary support; LBP-13-9, 78 NRC 48 n.35 (2013)
- PPL Susquehanna LLC* (Susquehanna Steam Electric Station, Units 1 and 2), LBP-07-10, 66 NRC 1, 23 (2007)  
generalized grievances with the sufficiency of NRC Staff's analysis or the adequacy of included documentation are not enough to raise a proposed contention to the level of admissibility; LBP-13-9, 78 NRC 48 n.35 (2013)

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- Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-02-20, 56 NRC 147, 156 (2002)  
environmental justice, as applied to the NRC, means that the agency will make an effort under NEPA to become aware of the demographic and economic circumstances of local communities; LBP-13-13, 78 NRC 523 (2013)
- Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-04-22, 60 NRC 125, 139 (2004)  
contentions need not be proven at the admissibility stage; LBP-13-8, 78 NRC 14 (2013)
- Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-05-19, 62 NRC 403, 411 (2005)  
Commission expects its licensing boards to review testimony, exhibits, and other evidence carefully and to resolve factual disputes; CLI-13-9, 78 NRC 560 n.36 (2013)
- Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-05-22, 62 NRC 542, 544 (2005)  
*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558 (2013)  
unreviewed board decisions do not create binding legal precedent; CLI-13-9, 78 NRC 558 (2013); CLI-13-10, 78 NRC 569 n.42 (2013)
- Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-01-23, 54 NRC 163, 172 n.3 (2001)  
admitted contentions challenging an applicant's environmental report may, in appropriate circumstances, function as challenges to similar portions of the Staff's environmental impact statement; LBP-13-9, 78 NRC 46 (2013)  
safety matters generally need to be raised, relative to an admitted safety contention, in the context of the merits disposition of the already-admitted safety contention or, in the case of a new issue, as a wholly new safety contention; LBP-13-10, 78 NRC 132 (2013)
- Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 and 3), CLI-10-9, 71 NRC 245, 252 (2010)  
motion for reconsideration is procedurally defective, out of time, and fails to assert compelling circumstances justifying reconsideration; CLI-13-7, 78 NRC 204 n.14 (2013)
- Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-11-1, 73 NRC 19, 26 (2011)  
contentions of adequacy may migrate into contentions of omission; LBP-13-10, 78 NRC 133 (2013)  
migration tenet for admitted contentions applies when information in the draft environmental impact statement is sufficiently similar to the information in the environmental report; LBP-13-9, 78 NRC 46-47 (2013)
- Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-899, 28 NRC 93, 97 (1988), *aff'd sub nom. Massachusetts v. NRC*, 924 F.2d 311 (D.C. Cir. 1991)  
reach of a contention necessarily hinges upon its terms coupled with its stated bases; LBP-13-10, 78 NRC 138 (2013)
- Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-88-10, 28 NRC 573, 596 (1988)  
to challenge generic application of a rule, petitioner seeking waiver must show that there is something extraordinary about the subject matter of the proceeding such that the rule should not apply; CLI-13-7, 78 NRC 207 (2013)  
when engaging in rulemaking, the Commission is carving out issues from adjudication for generic resolution; CLI-13-7, 78 NRC 207 (2013)
- Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-88-10, 28 NRC 573, 596-97 (1988)  
NRC case law has given meaning to the "special circumstances" requirement for rule waiver; CLI-13-7, 78 NRC 207 (2013)

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*Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-88-10, 28 NRC 573, 597 (1988)

it would not be consistent with NRC's statutorily mandated responsibilities to spend time and resources on matters that are of no substantive regulatory significance; CLI-13-7, 78 NRC 208-09 (2013)

*Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-88-10, 28 NRC 573, 597-98 (1988)

showing of uniqueness is necessary to justify setting aside a regulation for the purposes of a specific proceeding; CLI-13-7, 78 NRC 208 (2013)

*Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-88-10, 28 NRC 573, 599-600 (1988)

rather than assuming that a rule's purpose is simply to achieve its stated effect, one must look further by examining the underlying purpose of the requirement; CLI-13-7, 78 NRC 209 n.49 (2013)

*Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-89-20, 30 NRC 231, 235 (1989)

NRC case law has given meaning to the "special circumstances" requirement for rule waiver; CLI-13-7, 78 NRC 207 (2013)

*Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-662, 14 NRC 1125, 1135 & n.11 (1981)

opposing party's litigation expenses do not provide a basis for departing from the usual rule that a dismissal should be without prejudice; CLI-13-10, 78 NRC 567 n.27 (2013)

*Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), CLI-80-34, 12 NRC 407, 408 (1980)

*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558-59 (2013)

*Reyes-Gaona v. North Carolina Growers Association*, 250 F.3d 851, 865 (4th Cir. 2001)

doctrine of *expressio unis est exclusio alterius* instructs that where a law expressly describes a particular situation to which it shall apply, what was omitted or excluded was intended to be omitted or excluded; LBP-13-9, 78 NRC 67-68 (2013)

*Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 333 (1989)

NEPA's requirements, like publication of the environmental impact statement, implement NEPA's sweeping policy goals by ensuring that agencies will take a hard look at environmental consequences; LBP-13-13, 78 NRC 286 (2013)

*Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989)

National Environmental Policy Act declares a broad national commitment to protecting and promoting environmental quality; LBP-13-13, 78 NRC 284 (2013)

*Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989)

goals of NEPA are to ensure that agency decisionmakers will have detailed information concerning significant environmental impacts of proposed projects when they make their decisions and to guarantee that such information will be available to the larger audience that may also play a role in the decisionmaking process; LBP-13-13, 78 NRC 451, 508, 534 (2013)

*Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989)

although NRC must take a hard look under NEPA, NEPA itself does not mandate particular results; LBP-13-13, 78 NRC 286 n.184 (2013)

*Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353, 354-55 (1989)

severe accident mitigation alternatives analyses, as issues of mitigation, need only be discussed in sufficient detail to ensure that environmental consequences of the proposed project have been fairly evaluated; LBP-13-13, 78 NRC 453 (2013)

*Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 354-55, 359 (1989)

NEPA does not require a worst-case analysis; LBP-13-13, 78 NRC 286, 452 n.1419 (2013)

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*Rochester Gas and Electric Corp.* (Sterling Power Project, Nuclear Unit No. 1), ALAB-596, 11 NRC 867, 869 (1980)

*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558-59 (2013)

*Sanders v. United States*, 373 U.S. 1, 17 (1963)

denial of vacatur is merely one application of the principle that a suitor's conduct in relation to the matter at hand may disentitle him to the relief he seeks; CLI-13-9, 78 NRC 562 n.4 (2013)

*Scientists' Institute for Public Information, Inc. v. AEC*, 481 F.2d 1079, 1092 (D.C. Cir. 1973)  
NEPA's rule of reason is a judicial device to ensure that common sense and reason are not lost in the rubric of regulation and thus requires only reasonable forecasting; LBP-13-13, 78 NRC 452 (2013)

*Securities & Exchange Commission v. Sloan*, 436 U.S. 103, 109 (1978)

exception to the mootness doctrine occurs if the challenged action is too short in duration to be litigated and there is a reasonable expectation that the same party will be subjected to the same action again; CLI-13-9, 78 NRC 558 n.26 (2013)

exception to the mootness doctrine occurs when a case is capable of repetition, yet evading review; CLI-13-10, 78 NRC 568 n.35 (2013)

*Shieldalloy Metallurgical Corp.* (Amendment Request for Decommissioning of the Newfield, New Jersey Facility), LBP-07-5, 65 NRC 341, 352 (2007)

contention rule is strict by design and does not permit the filing of a vague, unparticularized contention, unsupported by affidavit, expert, or documentary support; LBP-13-9, 78 NRC 48 n.35 (2013)

*Shieldalloy Metallurgical Corp.* (Decommissioning of the Newfield, New Jersey Site), CLI-13-6, 78 NRC 155 (2013)

when a matter is not strictly adjudicatory in nature or otherwise does not fit cleanly within the procedures described in NRC rules of practice, the Commission undertakes a decision as an exercise of its inherent supervisory authority over agency proceedings; CLI-13-8, 78 NRC 224 (2013)

*Sierra Club v. Department of Transportation*, 753 F.2d 120, 127 (D.C. Cir. 1985)

alternatively to preparing an environmental impact statement, NRC can conduct an environmental assessment and make a finding of no significant impact; LBP-13-13, 78 NRC 272 n.79 (2013)

*Sierra Club v. Froehike*, 816 F.2d 205, 210 (5th Cir. 1987)  
recirculation of the draft environmental impact statement is required only when the information presents a seriously different picture of the environmental impacts; LBP-13-9, 78 NRC 64 (2013)

*South Carolina Electric & Gas Co.* (Virgil C. Summer Nuclear Station, Units 2 and 3), CLI-10-1, 71 NRC 1, 7 (2010)  
petitioners may use reply briefs to cure the affidavits used to establish standing; LBP-13-8, 78 NRC 8 n.10 (2013)

*South Carolina Electric & Gas Co.* (Virgil C. Summer Nuclear Station, Units 2 and 3), CLI-12-9, 75 NRC 421 (2012)

plants for which a SAMA analysis was conducted for the first time under section 51.53(c)(3)(ii)(L) may face general criticism that the passage of time between original licensing and renewal has rendered their SAMA analysis out of date upon application for a subsequent renewal term; CLI-13-7, 78 NRC 214-15 n.83 (2013)

*Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-12-20, 76 NRC 437, 439-40 (2012)

members of the public may challenge an action taken under 10 C.F.R. 50.59 only by means of a petition under section 2.206; LBP-13-11, 78 NRC 180 (2013)

*Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-9, 78 NRC 551, 557 n.23 (2013)

exception to the mootness doctrine is recognized when the same litigants are likely to be subject to similar future action; CLI-13-10, 78 NRC 568 (2013)

*Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-9, 78 NRC 551, 557-58 (2013)

possibility that an issue may arise in the future is not grounds to continue with an appeal in a proceeding where no live controversy remains between the litigants; CLI-13-10, 78 NRC 568 (2013)

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soundness of relocating certain surveillance frequencies from operating license technical specifications to licensee-controlled documents is better resolved in the context of a concrete dispute, where all of the parties have a stake in the outcome of the litigation; CLI-13-10, 78 NRC 569 (2013) unreviewed board decisions are not binding on future boards; CLI-13-10, 78 NRC 569 n.42 (2013)

*Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-9, 78 NRC 551, 558-59 (2013)

it is the Commission's customary practice to vacate a challenged licensing board decision when, during the pendency of an appeal, the proceeding becomes moot; CLI-13-10, 78 NRC 569 (2013)

*Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-9, 78 NRC 551, 559 & n.31 (2013)

Commission decision to vacate a board's decision does not intimate any opinion on its soundness; CLI-13-10, 78 NRC 569 (2013)

unreviewed board decisions may be cited by future litigants as persuasive authority; CLI-13-10, 78 NRC 569 n.42 (2013)

*Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-13-7, 77 NRC 307 (2013)

criteria of 10 C.F.R. 50.59 was used as an analytical tool to address the question of whether a confirmatory action letter issued to the licensee by the NRC Staff constituted a de facto license amendment that would be subject to a hearing opportunity; LBP-13-11, 78 NRC 181 (2013) no petition or other request for review of or hearing on the NRC Staff's significant hazards determination will be entertained by the Commission; LBP-13-11, 78 NRC 181 (2013)

*Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), LBP-08-2, 67 NRC 54, 63-64 (2008)

contentions of adequacy may migrate into contentions of omission; LBP-13-10, 78 NRC 133 (2013) intervenor attempting to litigate an issue based on expressed concerns about the draft environmental impact statement may need to amend the admitted contention or submit a new contention if the information in the DEIS is sufficiently different from the information in the environmental report that supported the original contention's admission; LBP-13-9, 78 NRC 47 (2013) migration tenet for admitted contentions applies when information in the draft environmental impact statement is sufficiently similar to the information in the environmental report; LBP-13-9, 78 NRC 46-47 (2013)

post-environmental report, intervenor would need to file a motion to amend an already-admitted contention or to admit a new contention if the information in the Staff's NEPA statement is sufficiently different from the information in the ER that supported the original contention's admission; LBP-13-10, 78 NRC 133 (2013)

*Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), LBP-08-2, 67 NRC 54, 64 (2008) although contention contesting applicant's environmental report generally may be viewed as a challenge to NRC Staff's subsequent draft environmental impact statement, new claims must be raised in a new or amended contention; LBP-13-10, 78 NRC 134 (2013)

if the portion of the environmental report that an admitted contention challenges is not sufficiently similar to the draft environmental impact statement, intervenor may need to amend the admitted contention or, if the information in the DEIS is sufficiently different from that in the ER, submit a new contention; LBP-13-9, 78 NRC 47 n.29 (2013)

*Southern Nuclear Operating Co.* (Vogtle Electric Generating Plant, Units 3 and 4), CLI-12-2, 75 NRC 63 (2012)

plants for which a SAMA analysis was conducted for the first time under section 51.53(c)(3)(ii)(L) may face general criticism that the passage of time between original licensing and renewal has rendered their SAMA analysis out of date upon application for a subsequent renewal term; CLI-13-7, 78 NRC 214-15 n.83 (2013)

*Southern Pacific Terminal Co. v. Interstate Commerce Commission*, 219 U.S. 498, 515 (1911)

exception to the mootness doctrine occurs if the challenged action is too short in duration to be litigated and there is a reasonable expectation that the same party will be subjected to the same action again; CLI-13-9, 78 NRC 558 n.26 (2013)

exception to the mootness doctrine occurs when a case is capable of repetition, yet evading review; CLI-13-10, 78 NRC 568 n.35 (2013)

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- Strata Energy, Inc.* (Ross In Situ Recovery Uranium Project), LBP-12-3, 75 NRC 164, 192-95 (2012) contention that the draft environmental impact statement fails to include necessary information for adequate determination of baseline groundwater quality is admissible; LBP-13-9, 78 NRC 54 n.79 (2013)
- Strata Energy, Inc.* (Ross In Situ Recovery Uranium Project), LBP-12-3, 75 NRC 164, 195-98 (2012) contention that draft environmental impact statement fails to include an adequate hydrogeological analysis to assess potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 58 n.106 (2013)
- Te-Moak Tribe of Western Shoshone*, 608 F.3d 592, 603 (9th Cir. 2010) NEPA analysis of cumulative impacts must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment; LBP-13-9, 78 NRC 83 (2013)
- Tennessee Valley Authority* (Bellefonte Nuclear Plant, Units 1 and 2), LBP-10-7, 71 NRC 391, 413-14 (2010) boards cannot logically infer that identified members of one organization are also members of another organization for purpose of representational standing determinations; LBP-13-8, 78 NRC 8 n.11 (2013)
- Tennessee Valley Authority* (Bellefonte Nuclear Plant, Units 3 and 4), LBP-08-16, 68 NRC 361, 379-80 (2008) boards cannot logically infer that identified members of one organization are also members of another organization for purpose of representational standing determinations; LBP-13-8, 78 NRC 8 n.11 (2013)
- Tennessee Valley Authority* (Watts Bar Nuclear Plant, Unit 2), CLI-10-29, 72 NRC 556, 563 (2010) NRC Staff will incorporate any new SAMA-related information that it finds to be significant in the final supplemental EIS; CLI-13-7, 78 NRC 217 (2013) petitioner's rule waiver petition is referred to NRC Staff as additional comments on the draft supplemental EIS for the Staff's consideration and response; CLI-13-7, 78 NRC 216-17 (2013)
- Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Unit 2), CLI-93-10, 37 NRC 192 (1993) controversy often ends during the pendency of appeals before the Commission or the Appeal Board; CLI-13-9, 78 NRC 558 (2013)
- Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Unit 2), CLI-93-10, 37 NRC 192, 200 (1993) because the plant is now permanently shut down and will not restart, no live controversy remains between the litigants; CLI-13-9, 78 NRC 557 (2013) cases will be moot when the issues are no longer live, or the parties lack a cognizable interest in the outcome; CLI-13-9, 78 NRC 557 (2013)
- Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Unit 2), CLI-93-10, 37 NRC 192, 205 (1993) *stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558-59 (2013)
- Thomas v. Peterson*, 753 F.2d 754, 759 (9th Cir. 1985) to determine whether interdependence exists among the various actions at issue, courts generally have looked to see whether the first action has independent utility; LBP-13-10, 78 NRC 147 (2013)
- Toledo Edison Co.* (Davis-Besse Nuclear Power Station, Units 1, 2, and 3), ALAB-560, 10 NRC 265, 400 (1979) exception to the mootness doctrine is recognized when the same litigants are likely to be subject to similar future action; CLI-13-10, 78 NRC 568 (2013)
- Toledo Edison Co.* (Davis-Besse Nuclear Power Station, Units 1, 2, and 3), ALAB-560, 10 NRC 265, 400 & n.23 (1979) general proposition that an appeal is not moot if there is a possibility of similar acts recurring in the future applies to instances where the same litigants likely will be subject to similar future action; CLI-13-9, 78 NRC 557 (2013)

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- Town of Winthrop v. Federal Aviation Administration*, 535 F.3d 1, 11-13 (1st Cir. 2008)  
NEPA allows agencies to select their own methodology as long as that methodology is reasonable; LBP-13-13, 78 NRC 287 n.193, 540 (2013)
- U.S. Bancorp Mortgage Co. v. Bonner Mall Partnership*, 513 U.S. 18, 23-24 (1994)  
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- U.S. Bancorp Mortgage Co. v. Bonner Mall Partnership*, 513 U.S. 18, 25 (1994)  
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- U.S. Parole Commission v. Geraughty*, 445 U.S. 388, 403 (1980)  
future cases are appropriately decided in the context of a concrete dispute, with self-interested parties vigorously advocating opposing positions; CLI-13-9, 78 NRC 557-58 (2013)
- U.S. Steel Mining Co., LLC v. Director, OWCP*, 386 F.3d 977, 985 (11th Cir. 2004)  
*Millstone* rule waiver decision, which aggregates cases interpreting the waiver standard, is an example of a uniform, permissible interpretation of NRC regulations; CLI-13-7, 78 NRC 205 n.19 (2013)
- Union Electric Co.* (Callaway Plant, Unit 1), LBP-12-15, 76 NRC 14, 36 (2012)  
admissible contention challenging consideration of alternatives must show that a particular alternative was not discussed in the draft environmental impact statement and provide some support that the alternative is reasonable; LBP-13-9, 78 NRC 89 (2013)
- Union Electric Co.* (Callaway Plant, Unit 2), CLI-11-5, 74 NRC 141, 169 (2011)  
bald allegations do not suffice to support contention admissibility; LBP-13-8, 78 NRC 14 (2013)
- United States Department of Energy* (Clinch River Breeder Reactor Plant), ALAB-755, 18 NRC 1337, 1338-39 (1983)  
*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudent matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558-59 (2013)
- US Ecology, Inc.* (Sheffield, Illinois Low-Level Radioactive Waste Disposal Site), ALAB-866, 25 NRC 897, 898 (1987)  
*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudent matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558-59 (2013)
- Warm Springs Dam Task Force v. Gribble*, 621 F.2d 1017, 1024 (9th Cir. 1980)  
NRC Staff will incorporate any new SAMA-related information that it finds to be significant in the final supplemental EIS; CLI-13-7, 78 NRC 217 (2013)
- Webb v. Gorsuch*, 699 F.2d 157, 161 (4th Cir. 1983)  
when developing an environmental impact statement, an agency must consider the impact of other proposed projects only if the projects are so interdependent that it would be unwise or irrational to complete one without the other; LBP-13-10, 78 NRC 147 (2013)
- Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-94-3, 39 NRC 95, 101 n.7 (1994)  
members of the public may challenge an action taken under 10 C.F.R. 50.59 only by means of a petition under section 2.206; LBP-13-11, 78 NRC 180 (2013)
- Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-1, 43 NRC 1, 6 (1996)  
to demonstrate standing, petitioner must show that it has suffered a distinct and palpable harm that constitutes injury-in-fact within the zone of interests arguably protected by the governing statute, that the injury can fairly be traced to the challenged action, and that the injury is likely to be redressed by a favorable decision; LBP-13-8, 78 NRC 7 (2013)
- Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-99-24, 50 NRC 219, 221-22 (1999)  
dismissal of an appeal with prejudice, similar to termination of a proceeding with prejudice, generally implies that the Commission has ruled on the merits of the appeal, but such ruling is reserved for unusual situations involving substantial prejudice to an opposing party or to the public interest in general; CLI-13-10, 78 NRC 568 n.29 (2013)
- Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-99-24, 50 NRC 219, 222 (1999)  
Commission decision to vacate a board's decision does not intimate any opinion on its soundness; CLI-13-9, 78 NRC 559 n.31 (2013); CLI-13-10, 78 NRC 569 (2013)

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no prejudice to either the intervenors or the public occurred where intervenors would have been in precisely the same position in any subsequent proceeding as if they had prevailed not only on their instant appeal but also on the subsequent merits portion of the proceeding; CLI-13-10, 78 NRC 567 n.27 (2013)

*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 558 (2013)

vacatur is designed to eliminate confusion and disagreement over what an unreviewed board decision may mean or what effect it may have in the resolution of safety or environmental issues in a future proceeding; CLI-13-9, 78 NRC 561 (2013)

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- 10 C.F.R. 2.101(e)(8), 2.104(a)  
before a final decision approving or disapproving a construction authorization application may be reached, not only must the Staff complete its safety and environmental reviews but a formal hearing must be conducted, and the Commission's own review of both contested and uncontested issues must take place; CLI-13-8, 78 NRC 226 (2013)
- 10 C.F.R. 2.107(a)  
if an application is withdrawn prior to issuance of a notice of hearing, the Commission shall dismiss the proceeding; CLI-13-10, 78 NRC 569 n.40 (2013)  
upon receipt of a motion to withdraw an application, the board may place terms and conditions on the withdrawal, deny the application, or dismiss the application with prejudice; CLI-13-10, 78 NRC 567 (2013)
- 10 C.F.R. 2.109(b)  
plants may continue to operate until the operating license renewal adjudication is completed; LBP-13-13, 78 NRC 262 (2013)  
time frame for SAMA analysis is inherent in NRC's regulatory scheme, which provides for a 40-year license term, with the possibility of license renewal for an additional 20-year period; CLI-13-7, 78 NRC 214 n.81 (2013)
- 10 C.F.R. 2.206  
members of the public may challenge an action taken under 10 C.F.R. 50.59 only by means of a petition under this section; LBP-13-11, 78 NRC 180 (2013)  
request for enforcement action to address concerns about operability of the submerged and/or wetted non-environmentally qualified inaccessible cables is denied; DD-13-2, 78 NRC 186-98 (2013)  
request for enforcement action to modify operating licenses or require licensee to submit amendment requests to revise technical specifications for spent fuel pool instrumentation is denied; DD-13-3, 78 NRC 573-83 (2013)
- 10 C.F.R. 2.302(g)(1)  
electronic filing is required unless the presiding officer grants an exemption permitting an alternative filing method for good cause shown, or unless the filing falls within the scope of an exception; CLI-13-9, 78 NRC 556 n.17 (2013)
- 10 C.F.R. 2.304(d)  
although the better practice would be to file a notice of appearance, the signature of a person signing a pleading is a representation that the document has been subscribed in the capacity specified with full authority; LBP-13-12, 78 NRC 241 n.9 (2013)  
pro se representative in licensing board proceedings, like all other representatives and/or lawyers, are required to be accurate and truthful and are subject to reprimand, censure, or suspension for failing in these duties; LBP-13-8, 78 NRC 19 n.25 (2013)
- 10 C.F.R. 2.307  
health issues or an unexpected weather event are reasons that might constitute good cause for purposes of requesting an extension under this section; LBP-13-9, 78 NRC 46 (2013)  
if the reason a motion to admit a new or amended contention was filed after the deadline does not relate to the substance of the filing itself, the standard in this section applies in determining whether the motion can be considered timely; LBP-13-9, 78 NRC 46 (2013)

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- time for submitting a new/amended contention motion based on information that would be newly available, materially different, and otherwise timely submitted given the information's availability can be extended if the extension request is based on good cause; LBP-13-10, 78 NRC 131 n.5 (2013) to be admissible, late-filed contentions must not only meet standards of section 2.309(f)(1), but must also satisfy the timeliness requirements of section 2.309(c) or this section; LBP-13-9, 78 NRC 46 (2013)
- 10 C.F.R. 2.307(a)  
filing deadlines may be extended or shortened either by the Commission or the presiding officer for good cause, or by stipulation approved by the Commission or the presiding officer; LBP-13-9, 78 NRC 46 (2013)  
good cause in this section does not share the same definition that is used for good cause in section 2.309(c); LBP-13-9, 78 NRC 46 (2013)
- 10 C.F.R. 2.308  
licensing boards are the appropriate finders of fact in most circumstances, and referral of a matter for a fact-specific dispute occurs in the ordinary course of business; CLI-13-9, 78 NRC 560 n.36 (2013)
- 10 C.F.R. 2.309  
contentions must satisfy the twin precepts of timeliness and admissibility; LBP-13-10, 78 NRC 130 (2013)  
petition pursuant to 10 C.F.R. 2.714, which was abolished in 2004, is treated as though filed under this section; LBP-13-12, 78 NRC 240 n.1 (2013)
- 10 C.F.R. 2.309(a)  
intervention petitioner must establish standing and proffer at least one admissible contention; LBP-13-8, 78 NRC 6, 8 (2013); LBP-13-11, 78 NRC 179 (2013); LBP-13-12, 78 NRC 241 (2013)
- 10 C.F.R. 2.309(b)  
intervenors and potential intervenors have a period of time to file new or amended contentions in response to a draft environmental impact statement; LBP-13-9, 78 NRC 60 (2013)
- 10 C.F.R. 2.309(c)  
good cause for late filing exists when information on which the filing is based was not previously available and is materially different from information previously available and the filing has been submitted in a timely fashion based on the availability of the subsequent information; LBP-13-9, 78 NRC 46 (2013)  
if a party submits a proposed contention after the initial filing deadline announced in the applicable *Federal Register* notice for submitting a hearing petition, it will not be entertained absent a determination by the presiding officer that a participant has demonstrated good cause; LBP-13-9, 78 NRC 45-46 (2013)  
to be admissible, late-filed contentions must not only meet standards of section 2.309(f)(1), but must also satisfy the timeliness requirements of this section or section 2.307; LBP-13-9, 78 NRC 46 (2013)
- 10 C.F.R. 2.309(c)(1)  
after the section 2.309(b) deadline has passed for submitting an initial hearing petition with one or more accompanying contentions, petitioner/intervenor who wishes to amend an already submitted or admitted contention or gain admission of a new contention must file a motion for leave to file such a new or amended contention; LBP-13-10, 78 NRC 130 (2013)
- 10 C.F.R. 2.309(c)(1)(i)  
contention that NRC has failed to properly define the scope of the proposed major federal action and instead improperly segments the project is inadmissible; LBP-13-10, 78 NRC 144 (2013)
- 10 C.F.R. 2.309(c)(1)(ii)  
new/amended contentions must demonstrate good cause for post-initial-hearing petition deadline filing, based on three factors; LBP-13-10, 78 NRC 130 (2013)
- 10 C.F.R. 2.309(c)(1)(iii)  
contention that NRC has failed to properly define the scope of the proposed major federal action and instead improperly segments the project is inadmissible; LBP-13-10, 78 NRC 144 (2013)  
degree to which new/amended contentions will be considered timely submitted is generally defined by the presiding officer as a specific period following the triggering event that makes the previously unavailable/materially different information available so as to be the basis for the new/amended contention; LBP-13-10, 78 NRC 131 (2013)

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#### 10 C.F.R. 2.309(c)(2)

contention questioning the adequacy of NRC Staff's consultation efforts with Native American tribes is admissible; LBP-13-9, 78 NRC 51 (2013)  
if the reason that a motion to admit a new or amended contention was filed after the deadline does not relate to the substance of the filing itself, the standard in section 2.307 applies in determining whether the motion can be considered timely; LBP-13-9, 78 NRC 46 (2013)

#### 10 C.F.R. 2.309(c)(4)

new or amended contentions generally must meet the six admissibility factors specified in section 2.309(f)(1); LBP-13-10, 78 NRC 131 (2013)

#### 10 C.F.R. 2.309(d)(1)(ii)-(iv)

to demonstrate standing, petitioner must describe the nature of petitioner's right to be made a party, nature and extent of petitioner's property, financial, or other interest, and possible effect of any subsequent decision or order on petitioner's interest; LBP-13-8, 78 NRC 6 (2013)

#### 10 C.F.R. 2.309(f)(1)

contention questioning the adequacy of NRC Staff's consultation efforts with Native American tribes is admissible; LBP-13-9, 78 NRC 51 (2013)  
contention that the draft environmental impact statement fails to consider all reasonable alternatives is inadmissible; LBP-13-9, 78 NRC 88 (2013)  
contention that the draft environmental impact statement fails to take a hard look at impacts of the proposed mine related to air emissions and liquid waste disposal is inadmissible; LBP-13-9, 78 NRC 93 (2013)

intervention petition is denied for failure to submit an admissible contention; LBP-13-11, 78 NRC 178, 181 (2013)

NRC rules provide a mechanism for supplementing an original NEPA analysis, but the rules do not guarantee a hearing; CLI-13-7, 78 NRC 211 (2013)

post-hearing-petition contention (new or amended contention) also must satisfy the substantive contention admissibility standards; LBP-13-9, 78 NRC 45 (2013)

purpose of this section is to focus litigation on concrete issues and result in a clearer and more focused record for decision; LBP-13-8, 78 NRC 9 (2013)

to be admissible, late-filed contentions must not only meet standards of this section, but must also satisfy the timeliness requirements of section 2.309(c) or section 2.307; LBP-13-9, 78 NRC 46 (2013)

#### 10 C.F.R. 2.309(f)(1)(i)

contention that the draft environmental impact statement fails to adequately analyze cumulative impacts is inadmissible; LBP-13-9, 78 NRC 86 (2013)

contention that the draft environmental impact statement fails to demonstrate adequate technical sufficiency and fails to present information in a clear, concise manner to enable effective public review is inadmissible; LBP-13-9, 78 NRC 64 (2013)

#### 10 C.F.R. 2.309(f)(1)(i)-(v)

contention that the draft environmental impact statement fails to adequately describe or analyze proposed mitigation measures is admissible; LBP-13-9, 78 NRC 68-69 (2013)

#### 10 C.F.R. 2.309(f)(1)(i)-(vi)

admissible contentions must meet all of the requirements of this section; LBP-13-8, 78 NRC 8-9 (2013)  
contention that license renewal application fails to adequately address the risks of flooding from failure of upstream dams is inadmissible; LBP-13-8, 78 NRC 11 (2013)

new or amended contentions generally must meet the six admissibility factors specified in this section; LBP-13-10, 78 NRC 131-32 (2013)

portions of a contention relevant to the completion of the Endangered Species Act § 7 consultation process and the adequacy of the NRC Staff's impact analyses relevant to the three named species meet the admissibility standards; LBP-13-9, 78 NRC 100-01 (2013)

#### 10 C.F.R. 2.309(f)(1)(ii)

claim that NRC Staff did not engage in the consultation process relevant to issues addressed by the Migratory Bird Treaty Act and that the impacts to wildlife with respect to this Act are inadequately analyzed is inadmissible; LBP-13-9, 78 NRC 101 (2013)

safety portion of contention questioning risk analysis of the long-term storage of irradiated nuclear fuel is inadmissible in license renewal proceedings; LBP-13-8, 78 NRC 16 (2013)

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#### 10 C.F.R. 2.309(f)(1)(iii)

contention asserting that applicant's Integrated Plant Assessment for the license renewal application fails to identify and assess safety-related incidents at the plant in its required time-limited aging analysis is a safety contention is not admissible; LBP-13-8, 78 NRC 21-22 (2013)

contention that applicant fails to include need-for-power analyses in its environmental reports for operating license renewal is inadmissible; LBP-13-12, 78 NRC 243 (2013)

contention that challenges the entire steam generator replacement project, rather than any aspect of the proposed changes to four technical specifications identified in the license amendment request is outside the scope of a license amendment proceeding; LBP-13-11, 78 NRC 182 (2013)

contention that it is premature to relicense nuclear facilities with existing permits that will not expire for 11 to 14 years because relicensing more than 10 years in advance of the expiration of the existing licenses will result in environmental impact statements that will be stale by the time the existing licenses expire is inadmissible; LBP-13-12, 78 NRC 244 (2013)

contention that licensee's history of managing whistleblower complaints regarding safety issues demonstrates that the plant will not be operated safely during the license renewal term is inadmissible; LBP-13-8, 78 NRC 33 (2013)

to assess whether a contention is within the scope of, and material to, the proceeding, boards need to know the legal basis (safety or environmental) of the contention; LBP-13-8, 78 NRC 11 (2013)

#### 10 C.F.R. 2.309(f)(1)(iv)

contention that does not focus at all on the technical specifications that are the subject of its request raises no issues that are material to any findings the NRC must make to approve the license amendment request; LBP-13-11, 78 NRC 182 (2013)

to assess whether a contention is within the scope of, and material to, the proceeding, boards need to know the legal basis (safety or environmental) of the contention; LBP-13-8, 78 NRC 11 (2013)

#### 10 C.F.R. 2.309(f)(1)(v)

bald allegations do not suffice to support contention admissibility; LBP-13-8, 78 NRC 14 (2013)

claim that NRC Staff did not engage in the consultation process relevant to issues addressed by the Migratory Bird Treaty Act and that the impacts to wildlife with respect to this Act are inadequately analyzed is inadmissible; LBP-13-9, 78 NRC 101 (2013)

claim that the draft environmental impact statement does not adequately assess the impacts to threatened and endangered species is rejected; LBP-13-9, 78 NRC 101 (2013)

contention that is primarily based on the fact that steam generator replacements in other reactors have experienced problems is not adequately supported; LBP-13-11, 78 NRC 182 (2013)

license renewal contention alleging higher cancer death rates in local counties than the state average is inadmissible because it is based on unsupported speculation; LBP-13-8, 78 NRC 19-20 (2013) only alleged facts, not evidence or expert opinion, are required to support contention admissibility;

LBP-13-8, 78 NRC 14 (2013)

petitioner must provide references to specific sources and documents on which petitioner intends to rely to support its contention; LBP-13-8, 78 NRC 14 (2013)

safety portion of contention questioning risk analysis of the long-term storage of irradiated nuclear fuel is inadmissible in license renewal proceeding; LBP-13-8, 78 NRC 16 (2013)

#### 10 C.F.R. 2.309(f)(1)(vi)

contention that applicant fails to include need-for-power analyses in its environmental reports for operating license renewal is inadmissible; LBP-13-12, 78 NRC 243 (2013)

contention that it is premature to relicense nuclear facilities with existing permits that will not expire for 11 to 14 years because relicensing more than 10 years in advance of the expiration of the existing licenses will result in environmental impact statements that will be stale by the time the existing licenses expire is inadmissible; LBP-13-12, 78 NRC 245 (2013)

contentions that are not accompanied by sufficient factual support to raise a genuine dispute are inadmissible; LBP-13-12, 78 NRC 240 (2013)

#### 10 C.F.R. 2.309(f)(1)(vi)

as to whether the connected-action aspect of 40 C.F.R. 1508.25(a)(1) supports an improper-segmentation contention's admissibility, petitioners have not providing sufficient supporting information to show that a genuine dispute exists on the material issue; LBP-13-10, 78 NRC 149, 150 (2013)

bald allegations do not suffice to support contention admissibility; LBP-13-8, 78 NRC 14 (2013)

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claim that the draft environmental impact statement does not adequately assess the impacts to threatened and endangered species is rejected; LBP-13-9, 78 NRC 101 (2013)

contention alleging that license renewal application fails to consider plutonium fuel use, which would place it outside the current licensing basis, is inadmissible; LBP-13-8, 78 NRC 23 (2013)

contention that applicant fails to include need-for-power analyses in its environmental reports for operating license renewal is inadmissible; LBP-13-12, 78 NRC 243 (2013)

contention that ice condenser containments lack acceptable aging management plans to adequately maintain critical components of the ice condenser containment for 20 years of additional operation is inadmissible; LBP-13-8, 78 NRC 27 (2013)

contention that it is premature to relicense nuclear facilities with existing permits that will not expire for 11 to 14 years because relicensing more than 10 years in advance of the expiration of the existing licenses will result in environmental impact statements that will be stale by the time the existing licenses expire is inadmissible; LBP-13-12, 78 NRC 244 (2013)

contention that license renewal application lacks supporting documentation providing the analysis detailing licensee's assumptions that the ice condenser containment can withstand severe accidents without leaking is inadmissible; LBP-13-8, 78 NRC 30 (2013)

contention that NRC has failed to properly define the scope of the proposed major federal action and instead improperly segments the project is inadmissible; LBP-13-10, 78 NRC 144 (2013)

contention that provides no reference to any specific portion of the license amendment request that petitioners dispute is inadmissible; LBP-13-11, 78 NRC 182 (2013)

contention that requiring the tribe to formulate contentions before a final EIS is released and failing to follow scoping process violates NEPA is inadmissible; LBP-13-9, 78 NRC 74-75 (2013)

contention that the draft environmental impact statement fails to adequately analyze cumulative impacts is inadmissible; LBP-13-9, 78 NRC 83, 86 (2013)

contention that the draft environmental impact statement fails to adequately describe or analyze proposed mitigation measures is admissible; LBP-13-9, 78 NRC 68 (2013)

contention that the draft environmental impact statement fails to demonstrate adequate technical sufficiency and fails to present information in a clear, concise manner to enable effective public review is inadmissible; LBP-13-9, 78 NRC 64 (2013)

contention that the draft environmental impact statement fails to include a reviewable plan for disposal of 11e(2) byproduct material is inadmissible; LBP-13-9, 78 NRC 70 (2013)

petitioner must provide sufficient information in support of a contention to show that a genuine dispute exists on a material issue of law or fact; LBP-13-8, 78 NRC 14 (2013)

safety portion of contention questioning risk analysis of the long-term storage of irradiated nuclear fuel is inadmissible in license renewal proceeding; LBP-13-8, 78 NRC 16 (2013)

10 C.F.R. 2.309(f)(2)

NEPA-related contentions initially are based on applicant's environmental report which will inform the Staff's NEPA review; CLI-13-7, 78 NRC 213 n.76 (2013); LBP-13-10, 78 NRC 132 (2013)

petitioner will have an opportunity to submit contentions based on the final supplemental environmental impact statement if appropriate; LBP-13-9, 78 NRC 75 (2013)

10 C.F.R. 2.314(b)

although the better practice would be to file a notice of appearance, pursuant to section 2.304(d), the signature of a person signing a pleading is a representation that the document has been subscribed in the capacity specified with full authority; LBP-13-12, 78 NRC 241 n.9 (2013)

10 C.F.R. 2.314(c)

pro se representatives in licensing board proceedings, like all other representatives and/or lawyers, are required to be accurate and truthful and are subject to reprimand, censure, or suspension for failing in these duties; LBP-13-8, 78 NRC 19 n.25 (2013)

10 C.F.R. 2.315(a)

board permitted any person who was not a party to the proceeding to submit written limited appearance statements concerning the issues in the proceeding; LBP-13-13, 78 NRC 274 (2013)

limited appearance statements do not constitute evidence but may assist the board and/or parties in defining the issues being considered; LBP-13-13, 78 NRC 274 (2013)

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- 10 C.F.R. 2.315(c)  
interested governmental entities who failed to raise admissible contentions were eligible to participate in the license renewal proceeding; LBP-13-13, 78 NRC 265-66 (2013)
- 10 C.F.R. 2.315(d)  
amicus curiae briefs may be filed when the Commission has taken up a matter pursuant to section 2.341 or sua sponte; CLI-13-9, 78 NRC 556 n.17 (2013)
- 10 C.F.R. 2.316  
contention challenging sufficiency of the draft environmental impact statement as it pertains to the protection of cultural resources falls within the migration tenet and is admissible; LBP-13-9, 78 NRC 105 (2013)
- 10 C.F.R. 2.319  
contention challenging sufficiency of the draft environmental impact statement as it pertains to the protection of cultural resources falls within the migration tenet and is admissible; LBP-13-9, 78 NRC 105 (2013)
- 10 C.F.R. 2.323  
although MRC rules do not provide for filing of amicus curiae briefs on motions filed pursuant to this section, as a matter of discretion, the Commission has reviewed both the brief and NRC Staff's opposition; CLI-13-9, 78 NRC 556 n.17 (2013)
- 10 C.F.R. 2.323(d)  
pro se representative in licensing board proceedings, like all other representatives and/or lawyers, are required to be accurate and truthful and are subject to reprimand, censure, or suspension for failing in these duties; LBP-13-8, 78 NRC 19 n.25 (2013)
- 10 C.F.R. 2.323(e)  
motion for reconsideration is procedurally defective, out of time, and fails to assert compelling circumstances justifying reconsideration; CLI-13-7, 78 NRC 204 n.14 (2013)
- 10 C.F.R. 2.325  
applicant has the burden of proof on safety issues in a licensing proceeding; LBP-13-13, 78 NRC 279 (2013)
- 10 C.F.R. 2.332(d)  
hearings on environmental issues addressed in the environmental impact statement may not commence before issuance of the final EIS; LBP-13-13, 78 NRC 275-76 (2013)  
hearings on safety issues may commence before publication of NRC Staff's safety evaluation if commencing the hearings at that time would expedite the proceeding; LBP-13-13, 78 NRC 275 (2013)  
presiding officer must take into consideration NRC Staff's projected schedule for completion of its safety and environmental evaluations to ensure that the hearing schedule does not adversely impact Staff's ability to complete its reviews in a timely manner; LBP-13-13, 78 NRC 275 (2013)
- 10 C.F.R. 2.333  
contention challenging sufficiency of the draft environmental impact statement as it pertains to the protection of cultural resources falls within the migration tenet and is admissible; LBP-13-9, 78 NRC 105 (2013)
- 10 C.F.R. 2.335  
waivers of NRC regulations may be granted in extraordinary situations where special circumstances can be demonstrated; LBP-13-12, 78 NRC 242 (2013)
- 10 C.F.R. 2.335(a)  
a limited exception to NRC's general prohibition against challenges to its rules or regulations in adjudicatory proceedings is provided; CLI-13-7, 78 NRC 206 (2013)  
absent a petition for a waiver, no rule or regulation of the Commission is subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding; LBP-13-12, 78 NRC 242 (2013)  
contention that applicant fails to include need-for-power analyses in its environmental reports for operating license renewal is inadmissible; LBP-13-12, 78 NRC 243 (2013)  
contention that it is premature to relicense nuclear facilities with existing permits that will not expire for 11 to 14 years because relicensing more than 10 years in advance of the expiration of the existing licenses will result in environmental impact statements that will be stale by the time the existing licenses expire is inadmissible; LBP-13-12, 78 NRC 244 (2013)

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- contentions that challenge an NRC regulation are inadmissible; LBP-13-9, 78 NRC 73 (2013);  
LBP-13-12, 78 NRC 240 (2013)
- 10 C.F.R. 2.335(b)  
a limited exception to NRC's general prohibition against challenges to its rules or regulations in adjudicatory proceedings is provided; CLI-13-7, 78 NRC 206 (2013)
- NRC rules provide a mechanism for supplementing an original NEPA analysis, but the rules do not guarantee a hearing; CLI-13-7, 78 NRC 211 (2013)
- rule waiver petitioners must demonstrate that applying the rule would not serve its intended purpose; CLI-13-7, 78 NRC 205 n.19 (2013)
- rule waiver petitions must include an affidavit that states with particularity the special circumstances that justify waiver of the rule; CLI-13-7, 78 NRC 207 (2013); LBP-13-12, 78 NRC 243 (2013)
- to challenge generic application of a rule, petitioner seeking waiver must show that there is something extraordinary about the subject matter of the proceeding such that the rule should not apply; CLI-13-7, 78 NRC 207 (2013)
- to litigate a SAMA-related contention in adjudicatory proceedings where the SAMA-analysis exception applies, petitioner must obtain a waiver by satisfying the requirements in this section as well as the contention admissibility criteria in section 2.309(f)(1); CLI-13-7, 78 NRC 212 (2013)
- to litigate an issue that otherwise would be outside the scope of an adjudication, petitioner must file a petition for waiver showing that special circumstances with respect to the subject matter of the particular proceeding are such that the application of the rule or regulation (or a provision of it) would not serve the purposes for which it was adopted; CLI-13-7, 78 NRC 206-07 (2013)
- 10 C.F.R. 2.337(f)  
board takes official notice of the contents of a document that was discussed at the hearing but was not submitted as an exhibit by any party; LBP-13-13, 78 NRC 390 n.984 (2013)
- 10 C.F.R. 2.341  
because the Commission's vacatur order does not address the merits, it need not address an argument that NRC Staff impermissibly raises objections to the merits of the board's decision without filing a petition for review; CLI-13-9, 78 NRC 559 n.31 (2013)
- 10 C.F.R. 2.341(f)(1)  
piececemeal review of licensing board decisions is disfavored, but boards may refer rulings that, although interlocutory, raise significant and novel legal or policy issues or require Commission resolution to materially advance the orderly disposition of the proceeding; CLI-13-7, 78 NRC 206 (2013)
- prior to its revision, this rule required that the referred ruling raise a significant and novel legal or policy issue and necessitate resolution to materially advance the orderly disposition of the proceeding; CLI-13-7, 78 NRC 206 n.25 (2013)
- 10 C.F.R. 2.802  
if petitioner's challenge to an agency rule or regulation relates to an issue of broader significance, then filing a petition for rulemaking is the better approach; CLI-13-7, 78 NRC 208 n.42 (2013)
- sole remedy to challenge the wisdom or lawfulness of 10 C.F.R. 51.53(c)(2) is to file a petition for rulemaking with the Commission; LBP-13-12, 78 NRC 242 (2013)
- 10 C.F.R. 2.802(a)  
any interested person may petition the Commission to issue, amend, or rescind any regulation; CLI-13-7, 78 NRC 208 n.42 (2013); CLI-13-10, 78 NRC 569 n.39 (2013)
- 10 C.F.R. 2.1015  
should a suspended adjudication resume, the Commission will consider appeals in due course, consistent with relevant Subpart J rules; CLI-13-8, 78 NRC 234 n.77 (2013)
- 10 C.F.R. 2.1022  
discovery cannot be completed nor can the evidentiary hearing be held until the safety evaluation report and all necessary environmental impact statements are completed; CLI-13-8, 78 NRC 227 (2013)
- 10 C.F.R. 2.1023  
before a final decision approving or disapproving a construction authorization application may be reached, not only must NRC Staff complete its safety and environmental reviews but a formal hearing must be conducted, and the Commission's own review of both contested and uncontested issues must take place; CLI-13-8, 78 NRC 226 (2013)

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- 10 C.F.R. 2.1026(a)  
subject to exceptions, the presiding officer must adhere to the schedule set forth in 10 C.F.R. Part 2, Appendix D; CLI-13-8, 78 NRC 232 n.66 (2013)
- 10 C.F.R. 2.1207(a)(3)  
parties filed proposed questions for the board to ask at the evidentiary hearing; LBP-13-13, 78 NRC 277 (2013)
- 10 C.F.R. 2.1207(a)(3)(iii)  
proposed questions filed by all parties will be publicly released by order of the board 30 days after its decision; LBP-13-13, 78 NRC 277 (2013)
- 10 C.F.R. Part 2, App. D  
discovery cannot be completed nor can the evidentiary hearing be held until the safety evaluation report and all necessary environmental impact statements are completed; CLI-13-8, 78 NRC 227 (2013)
- 10 C.F.R. 20.1003  
"residual radioactivity" is defined as radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control; CLI-13-6, 78 NRC 166 (2013)
- 10 C.F.R. 20.1402  
provisions of this section govern unrestricted release; CLI-13-6, 78 NRC 166 n.43 (2013)
- sites will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a Total Effective Dose Equivalent to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater sources of drinking water, and that the residual radioactivity has been reduced to levels that are as low as reasonably achievable; CLI-13-6, 78 NRC 159 n.7 (2013)
- to provide adequate protection to the public upon license termination, NRC has established a maximum dose level to the public of 25 mrem per year, which licensee must satisfy without regard to cost, and regardless of whether decommissioning is to be accomplished through restricted or unrestricted release; CLI-13-6, 78 NRC 162 n.18 (2013)
- 10 C.F.R. 20.1403  
determination expressly required by the text "further reductions in residual radioactivity . . . were not being made because the residual levels associated with restricted conditions are ALARA" is an inquiry that focuses on how far it is possible, on a cost-effective basis, to further reduce the "residual levels"; CLI-13-6, 78 NRC 168 (2013)
- 10 C.F.R. 20.1403(a)  
ALARA analysis calls for licensee seeking to use restricted release to analyze whether it would be cost-beneficial to remove enough radioactive contamination from the site so that doses to the public are no higher than 25 mrem per year without reliance on restricted-release controls; CLI-13-6, 78 NRC 162 (2013)
- board provides textual analysis and additional clarifying explanation of its interpretation of this section; CLI-13-6, 78 NRC 159 (2013)
- "further reductions" necessarily refers to further reductions from the level of residual radioactivity that a licensee proposes to leave in place under its proposed restricted-release decommissioning plan; CLI-13-6, 78 NRC 167 (2013)
- licensee must demonstrate through either method that further reducing proposed residual radioactivity to unrestricted-release levels, without considering the impacts of institutional controls and engineered barriers associated with restricted release, would not be cost-beneficial; CLI-13-6, 78 NRC 167 (2013)
- licensee must weigh costs and benefits of removing radioactive contamination using one of two alternative analyses modeled on the ALARA principle; CLI-13-6, 78 NRC 162 (2013)
- licensee seeking to demonstrate eligibility to pursue restricted release must show that further reductions, to a dose level of 25 mrem, of the levels of residual radioactivity proposed to be left in place under a restricted-release plan either would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA; CLI-13-6, 78 NRC 167 (2013)
- licensees, in determining whether levels are ALARA, are to consider detriments, such as traffic accidents; CLI-13-6, 78 NRC 169 (2013)
- nothing in NRC license termination regulations calls for a comparison of doses of restricted-release and unrestricted-release decommissioning options; CLI-13-6, 78 NRC 161 (2013)

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NRC prefers that licensees satisfy radiation dose criteria for license termination through unrestricted-release decommissioning if it is cost-beneficial to do so; CLI-13-6, 78 NRC 160 (2013) one of the benefits of removing enough radioactivity to cross the 25-mrem threshold is that the value of the affected property is likely to increase, and it is in this sense that NRC guidelines contemplate, as part of the ALARA analysis, a comparison between restricted release and unrestricted release; CLI-13-6, 78 NRC 172 (2013)

“reductions in residual radioactivity” refers only to dose reductions to the public that can be accomplished solely through the steps associated with unrestricted-release decommissioning, i.e., removal of contaminated material or decontamination; CLI-13-6, 78 NRC 166-67 (2013)

“residual levels,” as used in the phrase “were not being made because the residual levels . . . are ALARA,” refers back to, and is shorthand for, the term “residual radioactivity” used earlier in the introductory language; CLI-13-6, 78 NRC 168 (2013)

results of ALARA analysis will determine licensee’s initial eligibility to pursue restricted release; CLI-13-6, 78 NRC 162 (2013)

sites will be considered acceptable for license termination under restricted conditions if licensee can demonstrate that further reductions in residual radioactivity necessary to comply with the provisions of section 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA; CLI-13-6, 78 NRC 161 n.11 (2013) the ALARA principle incorporated into this section serves as a regulatory tool to limit the use of restricted release, i.e., to screen out sites that should be removing contamination to achieve unrestricted use; CLI-13-6, 78 NRC 162 (2013)

the words “further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402” are analyzed; CLI-13-6, 78 NRC 166 (2013)

to qualify for license termination under restricted release, licensee must demonstrate why further reductions in residual radioactivity that would be necessary to decommission a site pursuant to an unrestricted-release plan are not being made; CLI-13-6, 78 NRC 166 (2013)

10 C.F.R. 20.1403(b)

for license termination under restricted conditions, licensee must provide legally enforceable institutional controls that provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 25 mrem (0.25 mSv) per year; CLI-13-6, 78 NRC 159 n.7 (2013)

if licensee demonstrates, through either of the two cost-benefit approaches, that removing radioactive contamination to the unrestricted-use level would not be cost-beneficial, then licensee must show that, with the addition of engineered barriers and institutional controls, the average annual dose to the public will not exceed 25 mrem per year *and* is as low as is reasonably achievable; CLI-13-6, 78 NRC 163 (2013)

to provide adequate protection to the public upon license termination, NRC has established a maximum dose level to the public of 25 mrem per year, which licensee must satisfy without regard to cost, and regardless of whether decommissioning is to be accomplished through restricted or unrestricted release; CLI-13-6, 78 NRC 162 n.18 (2013)

10 C.F.R. 20.1403(e)

despite having passed the initial eligibility test for restricted release, if licensee cannot satisfy dose criteria, its site will not be considered acceptable for license termination under restricted conditions; CLI-13-6, 78 NRC 163 (2013)

licensee must show that, if institutional controls fail, enough residual radioactivity has been removed from the site so that the average annual dose to the public will not exceed 100 mrem per year and is as low as is reasonably achievable; CLI-13-6, 78 NRC 163 (2013)

reducing residual radioactivity from preexisting levels to the lowest level that can be accomplished cost-beneficially facilitates greater protection of public health and safety in the event engineered barriers and institutional controls fail over the long term; CLI-13-6, 78 NRC 170 (2013)

10 C.F.R. Part 40, Appendix A

contention that DSEIS lacks an adequate description of the present baseline (i.e., original or pre-mining) groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner, using proper sampling methodologies is admissible; LBP-13-10, 78 NRC 135 (2013)

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### REGULATIONS

- 10 C.F.R. Part 40, Appendix A, Criterion 4(e)  
regulation refers to safety criteria that apply to applicants and licensees and is not relevant to the NEPA review; LBP-13-9, 78 NRC 109 (2013)
- 10 C.F.R. Part 40, Appendix A, Criterion 5B(5)  
applicant's use of alternate concentration limits is a legal right; LBP-13-9, 78 NRC 87 (2013)  
purpose of ACLs is to address situations where restoring groundwater to baseline conditions or MCLs would not be practicable; LBP-13-9, 78 NRC 88-89 n.355 (2013)  
three alternative standards for groundwater restoration at ISR facilities are background concentrations, maximum values from chart 5C, or an alternate concentration limit; LBP-13-9, 78 NRC 89 n.355 (2013)
- 10 C.F.R. Part 40, Appendix A, Criterion 5B(5)(c)  
claim that alternate concentration limit could not be accurately generated until the post-operational decommissioning process did not account for the possible creation of a bounding analysis based on the historical experience at other ISR sites; LBP-13-10, 78 NRC 137 (2013)
- 10 C.F.R. Part 40, Appendix A, Criterion 5G(2)  
regulation refers to safety criteria that apply to applicants and licensees and is not relevant to the NEPA review; LBP-13-9, 78 NRC 109 (2013)
- 10 C.F.R. 50.2  
nuclear reactor is an apparatus, other than an atomic weapon, designed or used to sustain nuclear fission in a self-supporting chain reaction; DD-13-3, 78 NRC 581 (2013)
- 10 C.F.R. 50.34  
construction permit applications must include the principal design criteria for a proposed facility, describe the design bases and their relationship of to the principal design criteria in the preliminary safety analysis report; DD-13-3, 78 NRC 577 (2013)
- 10 C.F.R. 50.36  
criteria for limiting conditions for operation address aspects of reactor operation that contribute to prevention of accidents and provide the capability to immediately mitigate accidents; DD-13-3, 78 NRC 576-77 (2013)
- if petitioner wishes to pursue its concerns about the safety of relocating certain surveillance frequencies generically, it may, at any time, file a petition for rulemaking to amend the regulation; CLI-13-10, 78 NRC 569 (2013)
- technical specifications derived from the analyses and evaluations included in the safety analysis report are required; DD-13-3, 78 NRC 575 (2013)
- technical specifications must include limits for safety system settings and control settings, limiting conditions for operation, surveillance requirements, design features, and administrative controls; DD-13-3, 78 NRC 575 (2013)
- 10 C.F.R. 50.36(c)(1)(ii)(A)  
safety limits for nuclear reactors are limits on important process variables that are found to be necessary to reasonably protect the integrity of the physical barriers that guard against the uncontrolled release of radioactivity; DD-13-3, 78 NRC 575, 580 (2013)
- 10 C.F.R. 50.36(c)(2)  
limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility; DD-13-3, 78 NRC 575 (2013)
- 10 C.F.R. 50.36(c)(2)(ii)  
technical specifications for limiting conditions for operation of a nuclear reactor must be established for each item meeting one or more of the four criteria specified in this regulation; DD-13-3, 78 NRC 576, 582 (2013)
- 10 C.F.R. 50.36(c)(3)  
surveillance requirements relate to test, calibration, or inspection to ensure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met for certain structures, systems, and components; CLI-13-10, 78 NRC 565 n.6 (2013)
- 10 C.F.R. 50.36(c)(4)  
design features to be included in the technical specifications are those features of the facility such as materials of construction and geometric arrangements, which, if altered or modified, would have a significant effect on safety and are not covered by other TSs; DD-13-3, 78 NRC 576 (2013)

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10 C.F.R. 50.47(a)(1)(i)

no finding of reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency is necessary for issuance of a renewed nuclear power reactor operating license; LBP-13-13, 78 NRC 539 (2013)  
nuclear power reactors must have emergency plans in place to respond to accidents despite the fact that Table B-1 within 10 C.F.R. Part 51 concludes that the environmental impacts of both design basis and severe accidents at a nuclear reactor are small for all plants; LBP-13-13, 78 NRC 542 (2013)

10 C.F.R. 50.48

safety contention challenging aging management of electrical transformers does not include transformer support structures; LBP-13-13, 78 NRC 403 n.1085 (2013)

10 C.F.R. 50.49

cables important to safety must be designed to meet their intended function for the environment that they are subjected to and if cables have been exposed to conditions for which they are not designed, licensees must demonstrate, through testing or monitoring, reasonable assurance that the cables can perform their intended design function for the licensed operating term; DD-13-2, 78 NRC 190 (2013)  
cables subject to the environmental qualification standards of this regulation are cables that are important to the safety of a nuclear power plant and are required to function during an accident when exposed to harsh environmental conditions; LBP-13-13, 78 NRC 377 (2013)  
environmentally qualified cable is defined; LBP-13-13, 78 NRC 377 (2013)  
licensees must ensure that electrical cables are designed to function in environmental conditions during normal operation and during accidents; DD-13-2, 78 NRC 189 (2013)

10 C.F.R. 50.51(a)

time frame for SAMA analysis is inherent in NRC's regulatory scheme, which provides for a 40-year license term, with the possibility of license renewal for an additional 20-year period; CLI-13-7, 78 NRC 214 n.81 (2013)

10 C.F.R. 50.54(a)

licensee must implement managerial and administrative controls to ensure safe operation through implementation of the facility's quality assurance program; DD-13-3, 78 NRC 577 (2013)

10 C.F.R. 50.58(b)(6)

no petition or other request for review of or hearing on the NRC Staff's significant hazards determination will be entertained by the Commission; LBP-13-11, 78 NRC 181 n.18 (2013)

10 C.F.R. 50.59

although licensee can change from one proven test to another without prior NRC approval, it would need to follow the screening process under this section to ensure that it doesn't affect safety of the plant; LBP-13-13, 78 NRC 391 (2013)

applicant can only make a change in its procedures if screening demonstrates that this regulation does not apply or if the review under this regulation demonstrates that there are no remaining unreviewed safety questions; LBP-13-13, 78 NRC 365, 387 (2013)

applicant's commitment in the updated final safety analysis report cannot be changed without NRC Staff oversight and, specifically, evaluation of the eight criteria listed in this regulation; LBP-13-13, 78 NRC 363-64 (2013)

contention that steam generator replacement project be deemed an experiment and that an adjudicatory public hearing be convened for independent analysis of the project before it is implemented is inadmissible; LBP-13-11, 78 NRC 179-80 (2013)

if a different state-of-the-art test is developed prior to the time of the actual testing, applicant is allowed the flexibility to use the state-of-the-art test, subject to a prescreening for whether NRC approval is required; LBP-13-13, 78 NRC 392 (2013)

licensees must obtain NRC approval before implementing changes to the facility or facility procedures that do not meet certain criteria; DD-13-3, 78 NRC 577-78 (2013)

licensing board used the criteria of this section as an analytical tool to address the question of whether a confirmatory action letter issued to licensee by NRC Staff constituted a de facto license amendment that would be subject to a hearing opportunity; LBP-13-11, 78 NRC 181 (2013)

licensing boards have no authority to hear challenges to actions taken under this regulation; LBP-13-11, 78 NRC 181 (2013)

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- members of the public may challenge an action taken under this section only by means of a petition under section 2.206; LBP-13-11, 78 NRC 180 (2013)
- 10 C.F.R. 50.59(c)  
circumstances under which licensee may or may not make changes in a facility without obtaining a license amendment are set forth; LBP-13-11, 78 NRC 178 n.6 (2013)
- 10 C.F.R. 50.59(c)(1)  
if a procedure is not specifically called out in the updated final safety analysis report, licensee may change it without using the license amendment process described in this regulation; LBP-13-13, 78 NRC 365 (2013)
- 10 C.F.R. 50.59(c)(1)(i)  
revisions to technical specifications that are necessary to allow licensee to operate safely with the replacement steam generators after they have been installed require a license amendment; LBP-13-11, 78 NRC 180 (2013)
- 10 C.F.R. 50.63  
safety contention challenging aging management of electrical transformers does not include transformer support structures; LBP-13-13, 78 NRC 403 n.1085 (2013)
- 10 C.F.R. 50.65  
because irradiated fuel is continually present in the spent fuel pool once the reactor discharges the first batch of spent fuel, and conditions are most challenging during reactor shutdown for refueling, maintenance of equipment related to the safe storage of spent fuel is typically addressed as part of shutdown risk management; DD-13-3, 78 NRC 579 (2013)
- 10 C.F.R. 50.65(a)(4)  
guidance for implementation of risk management requirements during shutdown operations is provided; DD-13-3, 78 NRC 579 (2013)
- 10 C.F.R. 50.90  
if licensee sought to make a change to a surveillance frequency that did not conform to the NEI 04-10 standard, then it would then need to request a license amendment; CLI-13-10, 78 NRC 565 n.9 (2013)
- 10 C.F.R. 50.92(c)  
licensing boards lack jurisdiction to adjudicate challenges to NRC Staff's proposed no significant hazards consideration determination; LBP-13-11, 78 NRC 181 n.18 (2013)
- 10 C.F.R. Part 50, Appendix A, GDC 2  
structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as floods without loss of capability to perform their safety functions; LBP-13-8, 78 NRC 12 (2013)
- 10 C.F.R. Part 50, Appendix A, GDC 61  
establishing safety limits for stored irradiated fuel is not appropriate, but measures to prevent a significant loss of coolant inventory under accident conditions that could challenge the cooling of the stored fuel are documented in the updated final safety analysis report; DD-13-3, 78 NRC 581 (2013)
- 10 C.F.R. Part 50, Appendix B  
during the license renewal period, the regulations of this section concerning ongoing inspections and audits apply; LBP-13-13, 78 NRC 381 (2013)
- 10 C.F.R. Part 50, Appendix B, Criterion XI  
licensees must assess the condition of their components, monitor performance of structures, systems, and components to ensure that they can fulfill their intended functions, and establish a suitable test program to demonstrate that components will perform satisfactorily in-service; DD-13-2, 78 NRC 189 (2013)
- 10 C.F.R. Part 50, Appendix B, Criterion XVI  
because all aspects of licensee's current licensing basis will remain in effect during the period of extended operation, in the event that renewed licenses are issued, the requirements that conditions adverse to quality be corrected will apply; LBP-13-13, 78 NRC 332-33 (2013)
- 10 C.F.R. 51.7  
contention that draft environmental impact statement fails to include an adequate hydrogeological analysis to assess potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 55 (2013)
- 10 C.F.R. 51.10  
contention that draft environmental impact statement fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 58 (2013)

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- contention that draft environmental impact statement fails to comply with NEPA with regard to impacts on wildlife, and fails to comply with the Endangered Species Act and Migratory Bird Treaty Act is admissible in part; LBP-13-9, 78 NRC 94-95 (2013)
- contention that draft environmental impact statement fails to include an adequate hydrogeological analysis to assess potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 55 (2013)
- contention that NRC has failed to engage other relevant federal, state, and local agencies and has not analyzed impacts subject to jurisdiction and control of these other agencies, and has thus failed to comply with NEPA's action-forcing mandate and general purpose is inadmissible; LBP-13-9, 78 NRC 82 (2013)
- contention that the draft environmental impact statement fails to adequately analyze cumulative impacts is inadmissible; LBP-13-9, 78 NRC 83 (2013)
- contention that the draft environmental impact statement fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 110 (2013)
- contention that the draft environmental impact statement fails to adequately describe or analyze proposed mitigation measures is admissible; LBP-13-9, 78 NRC 65 (2013)
- contention that the draft environmental impact statement fails to consider all reasonable alternatives is inadmissible; LBP-13-9, 78 NRC 86 (2013)
- contention that the draft environmental impact statement fails to include a reviewable plan for disposal of 11e(2) byproduct material is inadmissible; LBP-13-9, 78 NRC 69 (2013)
- contention that the draft environmental impact statement fails to include an adequate hydrogeological analysis to assess adequate confinement and potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 107 (2013)
- contention that the draft environmental impact statement fails to take a hard look at impacts of the proposed mine related to air emissions and liquid waste disposal is inadmissible; LBP-13-9, 78 NRC 89 (2013)
- contention that the draft supplemental environmental impact statement fails to consider connected actions is admissible; LBP-13-9, 78 NRC 75 (2013)
- NRC has the right to prepare an independent environmental impact statement whenever NRC has regulatory authority over an activity; LBP-13-9, 78 NRC 82-83 (2013)
- 10 C.F.R. 51.23(a)  
Waste Confidence Rule concerning storage and disposal of high-level waste is vacated and the issue is remanded to the Commission to generate either a generic analysis that is forward looking and has enough breadth to support the Commission's conclusions or a site-specific environmental impact statement in all relevant proceedings; LBP-13-13, 78 NRC 270 (2013)
- 10 C.F.R. 51.26(d)  
when a supplement to an environmental impact statement is prepared, NRC Staff need not conduct a scoping process; LBP-13-9, 78 NRC 73, 75 (2013)
- 10 C.F.R. 51.29(b)  
NRC Staff must prepare a summary of determinations and conclusions and provide it to scoping participants; LBP-13-9, 78 NRC 72 (2013)
- 10 C.F.R. 51.41, 51.45(a)  
to assist NRC in preparation of a supplemental environmental impact statement, license renewal applicants are required to prepare an environmental report; CLI-13-7, 78 NRC 210 (2013)
- 10 C.F.R. 51.45(a)  
types of information that an environmental report must contain are described; CLI-13-7, 78 NRC 210 (2013)
- 10 C.F.R. 51.45(b)(5)  
nonspeculative irreversible and irretrievable commitment of resources requires that an environmental report provide an impacts analysis of such an occurrence; LBP-13-10, 78 NRC 137 (2013)
- 10 C.F.R. 51.53  
types of information that an environmental report must contain are described; CLI-13-7, 78 NRC 210 (2013)
- 10 C.F.R. 51.53(c)(2)  
contention that applicant fails to include need-for-power analyses in its environmental reports for operating license renewal is inadmissible; LBP-13-12, 78 NRC 242, 243 (2013)

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sole remedy to challenge the wisdom or lawfulness of this regulation is to file a petition for rulemaking under section 2.802 with the Commission; LBP-13-12, 78 NRC 242 (2013)

10 C.F.R. 51.53(c)(3)(i)

because it is a Category 1 issue, license renewal applicants need not address bird collisions in their environmental reports unless they are aware of relevant new and significant information; CLI-13-7, 78 NRC 213 (2013)

Category 1 impacts are those that NRC has determined are common across plants and are outside the scope of individual license renewal proceedings; LBP-13-13, 78 NRC 490 (2013)  
license renewal applicant can adopt findings of the generic environmental impact statement, designated as Category 1 issues in Table B-1 of Appendix B to Subpart A of Part 51; LBP-13-13, 78 NRC 285 (2013)

license renewal applicants whose facilities qualify for the SAMA-analysis exception are exempt from addressing severe accident mitigation in their environmental reports, just as they would be exempt from addressing Category 1 issues; CLI-13-7, 78 NRC 212 n.66 (2013)

10 C.F.R. 51.53(c)(3)(ii)

license renewal applicant can adopt findings of the generic environmental impact statement but must also include site-specific analyses of certain environmental impacts in its environmental report, designated as Category 2 issues; LBP-13-13, 78 NRC 285 (2013)  
types of information that an environmental report must contain are described; CLI-13-7, 78 NRC 210 (2013)

10 C.F.R. 51.53(c)(3)(ii)(L)

applicant is exempt from including in its environmental report a site-specific severe accident mitigation alternatives analysis because NRC Staff previously considered severe accident mitigation design alternatives in its final environmental impact statement; CLI-13-7, 78 NRC 202-03 (2013)  
applicant's estimate and NRC Staff's approval of projected population estimate for severe accident mitigation alternatives analysis are reasonable and satisfy the requirements under NEPA and this regulation; LBP-13-13, 78 NRC 484 (2013)

applicant's severe accident mitigation alternatives analysis is sufficiently site specific and its use and NRC Staff's approval of the NUREG-1150 TIMDEC and CDNFRM input values is reasonable and appropriate and satisfies the requirements under NEPA; LBP-13-13, 78 NRC 465, 474 (2013)  
contention that challenges lack of severe accident mitigation alternatives analysis in applicant's environmental report is inadmissible; CLI-13-7, 78 NRC 203 (2013)

contention that severe accident mitigation alternatives analysis does not accurately reflect decontamination and cleanup costs is decided; LBP-13-13, 78 NRC 450 (2013)

environmental analysis of severe accidents is designated as a Category 2 site-specific issue for license renewal, and therefore the SAMA analysis normally is subject to challenge in a license renewal adjudicatory proceeding; CLI-13-7, 78 NRC 211 (2013)

environmental reports must include a discussion of severe accident mitigation alternatives if NRC has not considered them previously for the applicant's plant; CLI-13-7, 78 NRC 210 (2013)

license renewal applicants whose facilities qualify for the SAMA-analysis exception are exempt from addressing severe accident mitigation in their environmental reports, just as they would be exempt from addressing Category 1 issues; CLI-13-7, 78 NRC 212 n.66 (2013)

licensing board erred in concluding that it is impossible to waive the exception in this section; CLI-13-7, 78 NRC 206 (2013)

NRC did not mandate a specific approach to SAMA analyses, but instead, stated that it would review each severe accident mitigation consideration provided by a license renewal applicant on its merits and determine whether it constitutes a reasonable consideration of SAMAs; CLI-13-7, 78 NRC 214 n.82 (2013)

preponderance of the evidence shows that applicant's estimate and the NRC Staff's approval of the projected population are reasonable and satisfy NEPA requirements and this regulation; LBP-13-13, 78 NRC 489 (2013)

purpose of the supplemental-SAMA-analysis exception in this section is to reflect NRC's view that one SAMA analysis, as a general matter, satisfies NRC's NEPA obligation to consider measures to mitigate both the risk and the environmental impacts of severe accidents; CLI-13-7, 78 NRC 210 (2013)

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- severe accident mitigation alternatives analysis is required for license renewal; LBP-13-13, 78 NRC 286 (2013)
- the exception in this section operates as the functional equivalent of a Category 1 issue, removing severe accident mitigation alternatives from litigation in case-by-case license renewal adjudications; CLI-13-7, 78 NRC 203 (2013)
- 10 C.F.R. 51.53(c)(3)(iv) because it is a Category 1 issue, license renewal applicants need not address bird collisions in their environmental reports unless they are aware of relevant new and significant information; CLI-13-7, 78 NRC 213 (2013)
- license renewal applicants must identify in their environmental reports any new and significant information of which the applicant is aware to assist in the preparation of NRC's new-and-significant-information analysis; CLI-13-7, 78 NRC 210 (2013)
- 10 C.F.R. 51.67 DOE may be required to supplement its final EIS when there is new information relevant to environmental concerns and bearing on the proposed action or its impacts; CLI-13-8, 78 NRC 232 (2013)
- 10 C.F.R. 51.70 contention that draft environmental impact statement fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 58 (2013)
- contention that draft environmental impact statement fails to analyze environmental impacts that will occur if applicant cannot restore groundwater to primary or secondary limits is admissible; LBP-13-10, 78 NRC 137 (2013)
- contention that draft environmental impact statement fails to comply with NEPA with regard to impacts on wildlife, and fails to comply with the Endangered Species Act and Migratory Bird Treaty Act is admissible in part; LBP-13-9, 78 NRC 94-95 (2013)
- contention that draft environmental impact statement fails to include an adequate hydrogeological analysis to assess potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 55 (2013)
- contention that draft environmental impact statement lacks an adequate description of the present baseline (i.e., original or pre-mining) groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner, using proper sampling methodologies is admissible; LBP-13-10, 78 NRC 135 (2013)
- contention that NRC has failed to properly define the scope of the proposed major federal action and instead improperly segments the project is inadmissible; LBP-13-10, 78 NRC 144 (2013)
- contention that the draft environmental impact statement fails to adequately analyze cumulative impacts is inadmissible; LBP-13-9, 78 NRC 83 (2013)
- contention that the draft environmental impact statement fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 110 (2013)
- contention that the draft environmental impact statement fails to adequately assess cumulative impacts of the proposed action and another proposed ISL uranium mining operation is inadmissible; LBP-13-10, 78 NRC 141 (2013)
- contention that the draft environmental impact statement fails to adequately describe or analyze proposed mitigation measures is admissible; LBP-13-9, 78 NRC 65 (2013)
- contention that the draft environmental impact statement fails to analyze the environmental impacts that will occur if applicant cannot restore groundwater to primary or secondary limits is admissible; LBP-13-10, 78 NRC 139 (2013)
- contention that the draft environmental impact statement fails to consider all reasonable alternatives is inadmissible; LBP-13-9, 78 NRC 86 (2013)
- contention that the draft environmental impact statement fails to include a reviewable plan for disposal of 11e(2) byproduct material is inadmissible; LBP-13-9, 78 NRC 69 (2013)
- contention that the draft environmental impact statement fails to include adequate hydrological information to demonstrate applicant's ability to contain groundwater fluid migration is admissible; LBP-13-10, 78 NRC 139, 140 (2013)
- contention that the draft environmental impact statement fails to include an adequate hydrogeological analysis to assess adequate confinement and potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 107 (2013)

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- contention that the draft environmental impact statement fails to take a hard look at impacts of the proposed mine related to air emissions and liquid waste disposal is inadmissible; LBP-13-9, 78 NRC 89 (2013)
- contention that the draft supplemental environmental impact statement fails to consider connected actions is admissible; LBP-13-9, 78 NRC 75 (2013)
- 10 C.F.R. 51.70(b)
- contention that the draft environmental impact statement fails to demonstrate adequate technical sufficiency and fails to present information in a clear, concise manner to enable effective public review is inadmissible; LBP-13-9, 78 NRC 61 (2013)
- 10 C.F.R. 51.71
- contention that draft environmental impact statement fails to analyze environmental impacts that will occur if applicant cannot restore groundwater to primary or secondary limits is admissible; LBP-13-10, 78 NRC 137 (2013)
- contention that draft environmental impact statement fails to comply with NEPA with regard to impacts on wildlife, and fails to comply with the Endangered Species Act and Migratory Bird Treaty Act is admissible in part; LBP-13-9, 78 NRC 94-95 (2013)
- contention that draft environmental impact statement lacks an adequate description of the present baseline (i.e., original or pre-mining) groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner, using proper sampling methodologies is admissible; LBP-13-10, 78 NRC 135 (2013)
- contention that NRC has failed to properly define the scope of the proposed major federal action and instead improperly segments the project is inadmissible; LBP-13-10, 78 NRC 144 (2013)
- contention that the draft environmental impact statement fails to adequately analyze cumulative impacts is inadmissible; LBP-13-9, 78 NRC 83 (2013)
- contention that the draft environmental impact statement fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 110 (2013)
- contention that the draft environmental impact statement fails to adequately assess cumulative impacts of the proposed action and another proposed ISL uranium mining operation is inadmissible; LBP-13-10, 78 NRC 141 (2013)
- contention that the draft environmental impact statement fails to adequately assess the likelihood and impacts of fluid migration to the adjacent groundwater is admissible; LBP-13-10, 78 NRC 139, 140 (2013)
- contention that the draft environmental impact statement fails to adequately describe or analyze proposed mitigation measures is admissible; LBP-13-9, 78 NRC 65 (2013)
- contention that the draft environmental impact statement fails to analyze the environmental impacts that will occur if applicant cannot restore groundwater to primary or secondary limits is admissible; LBP-13-10, 78 NRC 139 (2013)
- contention that the draft environmental impact statement fails to consider all reasonable alternatives is inadmissible; LBP-13-9, 78 NRC 86 (2013)
- contention that the draft environmental impact statement fails to include a reviewable plan for disposal of 11e(2) byproduct material is inadmissible; LBP-13-9, 78 NRC 69 (2013)
- contention that the draft environmental impact statement fails to include an adequate hydrogeological analysis to assess adequate confinement and potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 107 (2013)
- contention that the draft environmental impact statement fails to take a hard look at impacts of the proposed mine related to air emissions and liquid waste disposal is inadmissible; LBP-13-9, 78 NRC 89 (2013)
- contention that the draft supplemental environmental impact statement fails to consider connected actions is admissible; LBP-13-9, 78 NRC 75 (2013)
- 10 C.F.R. 51.73
- NRC rules provide a mechanism for supplementing an original NEPA analysis; CLI-13-7, 78 NRC 211 (2013)
- petitioner may submit to NRC Staff any information that it believes to be new and significant by participating in NRC's parallel NEPA process wherein an opportunity for public comment on the draft supplemental EIS is provided; CLI-13-7, 78 NRC 212 (2013)

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- 10 C.F.R. 51.74  
petitioner may submit to NRC Staff any information that it believes to be new and significant by participating in NRC's parallel NEPA process wherein an opportunity for public comment on the draft supplemental EIS is provided; CLI-13-7, 78 NRC 212 (2013)
- 10 C.F.R. 51.91(a)  
analysis and response to state's extensive comments to the draft supplemental environmental impact statement regarding state-specific energy conservation and efficiency as a replacement alternative fulfills NRC Staff's obligation to take a hard look at alternatives; LBP-13-13, 78 NRC 519, 520 (2013)  
NRC Staff is not obligated to fully adopt, or agree with, all comments to the draft supplemental environmental impact statement regarding the no-action alternative; LBP-13-13, 78 NRC 521 (2013)
- 10 C.F.R. 51.91(a)(i)-(v)  
final environmental impact statements will include responses to any comments on the draft environmental impact statement; LBP-13-13, 78 NRC 508 (2013)
- 10 C.F.R. 51.92(d)  
when a supplement to an environmental impact statement is prepared, NRC Staff need not conduct a scoping process; LBP-13-9, 78 NRC 73, 75 (2013)
- 10 C.F.R. 51.95  
preponderance of the evidence supports conclusion that NRC Staff's reasoned, qualitative approach to weighing the costs and benefits of plant shutdown on property values and the local community is reasonable and satisfies regulatory requirements; LBP-13-13, 78 NRC 505 (2013)
- 10 C.F.R. 51.95(c)  
to assist NRC in preparation of a supplemental environmental impact statement, license renewal applicants are required to prepare an environmental report; CLI-13-7, 78 NRC 210 (2013)
- 10 C.F.R. 51.95(c)(2)  
NRC Staff is not required to analyze the need for the power for license renewal; LBP-13-13, 78 NRC 519 n.1929 (2013)  
supplemental environmental impact statements for license renewal are not required to include discussion of need for power or the economic costs and economic benefits of the proposed action or of alternatives to the proposed action; LBP-13-13, 78 NRC 507 (2013)
- 10 C.F.R. 51.95(c)(3)  
NRC rules provide a mechanism for supplementing an original NEPA analysis; CLI-13-7, 78 NRC 211 (2013)
- 10 C.F.R. 51.95(c)(4)  
license renewal applicants must identify in their environmental reports any new and significant information of which the applicant is aware to assist in the preparation of NRC's new-and-significant-information analysis; CLI-13-7, 78 NRC 210 (2013)  
NRC rules provide a mechanism for supplementing an original NEPA analysis; CLI-13-7, 78 NRC 211 (2013)
- 10 C.F.R. 51.102(a)  
as part of its environmental review, NRC Staff must prepare a Record of Decision to accompany any Commission decision on any action for which a final EIS has been prepared; LBP-13-13, 78 NRC 525 (2013)
- 10 C.F.R. 51.102(b)  
NRC Staff typically prepares the record of decision; LBP-13-13, 78 NRC 525 (2013)
- 10 C.F.R. 51.103(a)(4)  
record of decision is required to summarize any license conditions and monitoring programs adopted in connection with mitigation measures; LBP-13-9, 78 NRC 69 (2013)
- 10 C.F.R. 51.109(c)  
presiding officer in the adjudication will determine the extent to which adoption by the NRC of DOE's repository EIS and its supplements is practicable, which in turn will satisfy NRC's NEPA obligations; CLI-13-8, 78 NRC 232 (2013)
- 10 C.F.R. 51.120  
contention that the draft environmental impact statement fails to demonstrate adequate technical sufficiency and fails to present information in a clear, concise manner to enable effective public review is inadmissible; LBP-13-9, 78 NRC 61 (2013)

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- 10 C.F.R. Part 51, Subpart A, App. A  
contention that the draft environmental impact statement fails to demonstrate adequate technical sufficiency and fails to present information in a clear, concise manner to enable effective public review is inadmissible; LBP-13-9, 78 NRC 61 (2013)
- 10 C.F.R. Part 51, Subpart A, App. A, §4  
when taking the requisite hard look at environmental consequences of the alternatives to the proposed licensing action, the environmental impact statement must discuss the no-action alternative; LBP-13-13, 78 NRC 507 (2013)
- 10 C.F.R. Part 51, Subpart A, App. B  
environmental analysis of severe accidents is designated as a Category 2 site-specific issue for license renewal, and therefore the SAMA analysis normally is subject to challenge in a license renewal adjudicatory proceeding; CLI-13-7, 78 NRC 211 (2013)  
rule waiver would be necessary to litigate the issue of potentially new and significant information pertaining to bird collisions in an adjudicatory proceeding; CLI-13-7, 78 NRC 213 (2013)
- 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1  
bird collisions have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term; CLI-13-7, 78 NRC 212 (2013)  
environmental justice must be addressed in individual license renewal reviews; LBP-13-13, 78 NRC 524 (2013)
- offsite land use is a Category 2 impact because land-use changes may be perceived by some community members as adverse and by others as beneficial, and so, NRC Staff is unable to assess generically the potential significance of site-specific offsite land use impacts; LBP-13-13, 78 NRC 490 (2013)
- 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1 § 3  
“small” is defined in NRC regulations as environmental impacts that are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource; LBP-13-13, 78 NRC 534 (2013)
- 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1, n.3  
“small,” “moderate,” and “large” environmental impacts are defined; LBP-13-8, 78 NRC 20 (2013)
- 10 C.F.R. 54.3  
current licensing basis consists of license requirements, including license conditions and technical specifications, plant-specific design basis information, and any orders, exemptions, and licensee commitments that are part of the docket for the plant’s license; LBP-13-13, 78 NRC 281 n.149 (2013)  
current licensing basis includes applicant’s commitments through incorporation of applicant’s updated final safety analysis report supplement; LBP-13-13, 78 NRC 363 (2013)
- 10 C.F.R. 54.3(a)  
commitments in the updated final safety analysis report and aging management plan are legally binding as part of the current licensing basis throughout the period of extended operation and can only be changed through the section 50.59 process; LBP-13-13, 78 NRC 366 (2013)  
current licensing basis includes NRC regulations contained in 10 C.F.R. Part 50 and appendices thereto; LBP-13-8, 78 NRC 12 (2013)  
“current licensing basis” is defined; LBP-13-8, 78 NRC 12 n.17 (2013)
- 10 C.F.R. 54.4(a)  
adequacy of plan to manage the effects of aging during the period of extended operation for buried pipes, tanks, and transfer canals that contain radioactive fluid is decided; LBP-13-13, 78 NRC 310-11 (2013)
- 10 C.F.R. 54.4(a)(1)  
scope of license renewal, including buried piping, addresses all safety-related structures, systems, and components that are relied upon to remain functional to ensure the integrity of the reactor coolant pressure boundary, the capability to shut down and maintain the safe shutdown of the reactor, or the capability to prevent or mitigate the consequences of accidents that could result in potential offsite radiation exposures; LBP-13-13, 78 NRC 314 (2013)
- 10 C.F.R. 54.4(a)(1)(iii)  
buried structures, systems, and components must also control inadvertent radiological releases to ensure that dose exposures are below the regulatory limits; LBP-13-13, 78 NRC 368 (2013)

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- 10 C.F.R. 54.4(a)(2)  
scope of license renewal consists of all nonsafety-related structures, systems, and components whose failure could prevent satisfactory accomplishment of any safety functions including control of excessive dose exposures; LBP-13-13, 78 NRC 321 (2013)
- 10 C.F.R. 54.4(b)  
buried structures, systems, and components must also control inadvertent radiological releases to ensure that dose exposures are below the regulatory limits; LBP-13-13, 78 NRC 368 (2013)
- 10 C.F.R. 54.17(c)  
application for a renewed license may be filed as early as 20 years before expiration of the license then in effect; LBP-13-12, 78 NRC 244 (2013)
- contention that it is premature to relicense nuclear facilities with existing permits that will not expire for 11 to 14 years because relicensing more than 10 years in advance of the expiration of the existing licenses will result in environmental impact statements that will be stale by the time the existing licenses expire is inadmissible; LBP-13-12, 78 NRC 244 (2013)
- earliest that a license renewal application may be submitted is 20 years before the expiration date of the operating license in effect; CLI-13-7, 78 NRC 214 n.81 (2013)
- time frame for SAMA analysis is inherent in NRC's regulatory scheme, which provides for a 40-year license term, with the possibility of license renewal for an additional 20-year period; CLI-13-7, 78 NRC 214 n.81 (2013)
- 10 C.F.R. 54.21  
adequacy of plan to manage effects of aging during the period of extended operation for buried pipes, tanks, and transfer canals that contain radioactive fluid is decided; LBP-13-13, 78 NRC 311 (2013)
- integrated plant assessment must demonstrate that effects of aging will be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation; LBP-13-13, 78 NRC 374 (2013)
- license renewal applicant is not required to identify safety-related incidents that have occurred during the current licensing term; LBP-13-8, 78 NRC 22 (2013)
- 10 C.F.R. 54.21(a)  
aging management review consists of identifying the aging effects, and the aging management plans will manage aging effects and demonstrate that passive, long-lived SSCs will perform their intended functions during the period of extended operation; LBP-13-13, 78 NRC 280 (2013)
- although the current licensing basis is not evaluated in the license renewal process, its provisions and protections remain in effect, complementing and supplementing any additional measures added due to aging management requirements; LBP-13-13, 78 NRC 281 (2013)
- applicants must demonstrate that they have programs in place that will effectively manage the effects of aging for specific types of structures and components during the period of extended operation; LBP-13-13, 78 NRC 280 (2013)
- each application must contain an integrated plant assessment that is a detailed assessment, conducted at a component and structure level, rather than at a more generalized system level; LBP-13-13, 78 NRC 280 (2013)
- license renewal applications must include an integrated plant assessment demonstrating that effects of aging on plant systems, structures, and components will be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation; LBP-13-8, 78 NRC 10 (2013)
- safety contention challenging aging management of electrical transformers is decided; LBP-13-13, 78 NRC 403 (2013)
- safety contentions challenging aging management of non-environmentally qualified inaccessible medium-voltage cables and wiring are decided; LBP-13-13, 78 NRC 372 (2013)
- structures, systems, and components are passive if they perform their intended function without moving parts or without a change in configuration or properties and the effects of aging degradation for these components are not readily monitorable; LBP-13-13, 78 NRC 404 (2013)
- 10 C.F.R. 54.21(a)(1)  
as a passive component with no moving parts, and no change in configuration, properties, or state, transformers must undergo aging management review; LBP-13-13, 78 NRC 449 (2013)

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each reactor license renewal application must contain a list of structures and components subject to aging management review; LBP-13-13, 78 NRC 404 (2013)

license renewal applicant is required to list structures and components subject to an aging management review; LBP-13-8, 78 NRC 22 (2013)

10 C.F.R. 54.21(a)(1)(i)

aging management review only covers systems, structures, and components, which perform their intended function without moving parts or without a change in configuration or properties; LBP-13-13, 78 NRC 280 (2013)

board compares transformers to the components listed in this regulation to determine whether they are subject to aging management review; LBP-13-13, 78 NRC 444 (2013)

power transformers are active devices that do not require aging management review or an aging management program; LBP-13-13, 78 NRC 438 (2013)

structures and components considered active and designated as excluded from aging management review are listed; LBP-13-13, 78 NRC 432 n.1281 (2013)

structures and components considered passive and designated as subject to aging management review are listed; LBP-13-13, 78 NRC 432 n.1280 (2013)

transformers are more closely aligned with those components that require aging management review; LBP-13-13, 78 NRC 444-45 (2013)

transformers perform their intended function through a change in state similar to switchgear, power supplies, battery chargers, and power inverters, which have been excluded by from an aging management review; LBP-13-13, 78 NRC 432-33 (2013)

10 C.F.R. 54.21(a)(1)(ii)

board reviews whether transformers are subject to replacement based on a qualified life or specified time period; LBP-13-13, 78 NRC 412 (2013)

10 C.F.R. 54.21(a)(3)

applicant's aging management plan for flow-accelerated corrosion and the definition of flow-accelerated corrosion are discussed; LBP-13-13, 78 NRC 288 (2013)

by a preponderance of the evidence, applicant has provided reasonable assurance that the effects of aging on buried pipes that contain or may contain radioactive fluids can be adequately managed during the period of extended operation; LBP-13-13, 78 NRC 372 (2013)

integrated plant assessment must demonstrate that effects of aging will be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation; LBP-13-8, 78 NRC 34 (2013); LBP-13-13, 78 NRC 280, 374 (2013)

legal standards for license renewal applicant's flow-accelerated corrosion management plan stand as a condition precedent to relicensing; LBP-13-13, 78 NRC 290 (2013)

license renewal applicant must provide a general description of the corporate-wide and plant-specific procedures sufficient to show that the ten elemental attributes of GALL have been addressed so as to demonstrate that the effects of aging on buried pipes will be adequately managed throughout the period of extended operation; LBP-13-13, 78 NRC 324 (2013)

license renewal applicant must provide reasonable assurance that the intended functions of buried pipes, tanks, and transfer canals that contain radioactive fluid will be maintained in accordance with the current licensing basis for the period of extended operation; LBP-13-13, 78 NRC 314 (2013)

preponderance of the evidence demonstrates that the elements of applicant's aging management plan for non-EQ inaccessible medium- and low-voltage cables are consistent with the corresponding elements of the GALL Report and, as such, that program provides the requisite reasonable assurance; LBP-13-13, 78 NRC 402-03 (2013)

preponderance of the evidence supports the conclusion that applicant has demonstrated that the effects of aging from flow-accelerated corrosion on the intended functions of the piping and components susceptible to FAC will be adequately managed for the period of extended operation; LBP-13-13, 78 NRC 310 (2013)

statements in the license renewal application promising to develop and implement an aging management plan that would be consistent with the NRC guidance document applicable at the time the application was submitted is insufficient; LBP-13-13, 78 NRC 324, 366, 368 n.818 (2013)

## LEGAL CITATIONS INDEX

### REGULATIONS

#### 10 C.F.R. 54.21(c)

although the current licensing basis is not evaluated in the license renewal process, its provisions and protections remain in effect, complementing and supplementing any additional measures added due to aging management requirements; LBP-13-13, 78 NRC 281 (2013)

reassessment of time-limited aging analyses must show that the earlier analysis will remain valid for the extended operation period or modify and extend the analysis to apply to a longer term, such as 60 years, or otherwise demonstrate that the effects of aging will be adequately managed in the renewal term; LBP-13-13, 78 NRC 280-81 (2013)

#### 10 C.F.R. 54.21(c)(1)(iii)

commitment to implement an aging management plan consistent with the GALL Report is an acceptable method for compliance with this regulation; LBP-13-13, 78 NRC 283 (2013)

#### 10 C.F.R. 54.21(d)

updated final safety analysis report supplement represents the capturing of the critical aspects of the program into the applicant's current licensing basis; LBP-13-13, 78 NRC 363, 364-65 (2013)

#### 10 C.F.R. 54.29

applicants must demonstrate that they have programs in place that will effectively manage the effects of aging for specific types of structures and components during the period of extended operation; LBP-13-13, 78 NRC 280 (2013)

findings that NRC must make to issue a license renewal are described; LBP-13-13, 78 NRC 281-82 (2013)

safety contention challenging aging management of electrical transformers is decided; LBP-13-13, 78 NRC 403 (2013)

safety contentions challenging aging management of non-environmentally qualified inaccessible medium-voltage cables and wiring are decided; LBP-13-13, 78 NRC 372 (2013)

#### 10 C.F.R. 54.29(a)

adequacy of plan to manage effects of aging during the period of extended operation for buried pipes, tanks, and transfer canals that contain radioactive fluid is decided; LBP-13-13, 78 NRC 311 (2013)

legal standards for license renewal applicant's flow-accelerated corrosion management plan stand as a condition precedent to relicensing; LBP-13-13, 78 NRC 290 (2013)

preponderance of the evidence demonstrates that the elements of applicant's aging management plan for non-EQ inaccessible medium- and low-voltage cables are consistent with the corresponding elements of the GALL Report and, as such, that program provides the requisite reasonable assurance; LBP-13-13, 78 NRC 402-03 (2013)

#### 10 C.F.R. 54.29(a)(1)(i)

structures and components subject to aging management review include those that perform an intended function, as described in section 54.4; LBP-13-13, 78 NRC 404 (2013)

#### 10 C.F.R. 54.30

although monitoring/inspections performed during current operations under Part 50 and the current licensing basis are excluded from review during license renewal, the mere fact that the intended function of transformers is being monitored in accordance with the CLB does not exempt them from needing to be included in an aging management review program for license renewal; LBP-13-13, 78 NRC 449 (2013)

only structures and components with active functions that are readily monitorable are excluded from aging management review; LBP-13-13, 78 NRC 412 (2013)

#### 10 C.F.R. 54.30(b)

compliance with the current licensing basis is not within the scope of a license renewal proceeding; LBP-13-8, 78 NRC 12 (2013)

if compliance with the current licensing basis cannot be fully achieved during the current licensing term and must be consummated during the period of extended operation, then a contention raising issues about such CLB compliance is within the scope of license renewal; LBP-13-8, 78 NRC 14 (2013)

#### 10 C.F.R. 54.31(d)

plants for which a SAMA analysis was conducted for the first time under section 51.53(c)(3)(ii)(L) may face general criticism that the passage of time between original licensing and renewal has rendered their SAMA analysis out of date upon application for a subsequent renewal term; CLI-13-7, 78 NRC 214 (2013)

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### REGULATIONS

- 10 C.F.R. 54.33  
all the information that applicant uses to support its license renewal application has to be maintained in an auditable and retrievable form; LBP-13-13, 78 NRC 323 (2013)
- 10 C.F.R. 54.35  
liquid released from a leaky pipe where the pressure boundary is maintained would not be sufficient to exceed the dose limits specified in 10 C.F.R. Part 54; LBP-13-13, 78 NRC 321 (2013)
- 10 C.F.R. 57.71  
contention that draft environmental impact statement fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 58 (2013)
- 36 C.F.R. 800.2(c)(2)(ii)(D)  
contention questioning the adequacy of NRC Staff's consultation efforts with Native American tribes is admissible; LBP-13-9, 78 NRC 51 (2013)
- 40 C.F.R. 1502.4(a)  
agencies must make sure that the proposal that is the subject of an environmental impact statement is properly defined; LBP-13-10, 78 NRC 144 (2013)
- proposals or parts of proposals that are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement; LBP-13-10, 78 NRC 144 (2013)
- 40 C.F.R. 1502.16(h)  
NEPA requires that the draft environmental impact statement include and discuss means to mitigate adverse environmental impacts; LBP-13-9, 78 NRC 65 (2013)
- 40 C.F.R. 1507.7  
cumulative impact is defined; LBP-13-9, 78 NRC 79 (2013)
- 40 C.F.R. 1508.25  
agencies are to use the parameters laid out in this regulation when defining the scope of the environmental impact statement; LBP-13-10, 78 NRC 144 (2013)
- 40 C.F.R. 1508.25(a)  
three types of actions (connected, cumulative, and similar) are to be considered in looking to the scope of an EIS; LBP-13-10, 78 NRC 147 (2013)
- 40 C.F.R. 1508.25(a)(1)  
pertinent to the question of whether a facility is a connected action is whether the facility lacks any independent utility in the absence of the completion of the other sites; LBP-13-10, 78 NRC 148-49 (2013)
- 40 C.F.R. 1508.25(a)(1)(i)-(iii)  
to determine whether actions are connected such that they should be discussed in the same environmental impact statement, an agency is to consider whether the actions automatically trigger other actions that may require an EIS, cannot or will not proceed unless other actions are taken previously or simultaneously, or are interdependent parts of a larger action and depend on the larger action for their justification; LBP-13-10, 78 NRC 147 (2013)
- 40 C.F.R. 1508.25(a)(2)  
cumulative actions are those that, when viewed with other proposed actions, have cumulatively significant impacts so that they should be discussed in the same environmental impact statement; LBP-13-10, 78 NRC 147 (2013)
- 40 C.F.R. 1508.25(a)(3)  
similar actions are those that, when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental impacts together, such as common timing or geography, so that the agency may wish to analyze them together; LBP-13-10, 78 NRC 147 (2013)
- 50 C.F.R. 402.02  
section 7 of the Endangered Species Act applies only where threatened and endangered species or critical habitats are present and impacts on a species are expected as a result of the proposed project; LBP-13-9, 78 NRC 96 (2013)
- 50 C.F.R. 402.10(a)  
agencies are required to confer with the Fish and Wildlife Service on any action that is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat; LBP-13-9, 78 NRC 95 (2013)

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### **REGULATIONS**

#### **50 C.F.R. 402.13**

section 7 of the Endangered Species Act applies only where threatened and endangered species or critical habitats are present and impacts on a species are expected as a result of the proposed project; LBP-13-9, 78 NRC 96 (2013)

#### **50 C.F.R. 402.13(a)**

if NRC engages in an informal consultation with the Fish and Wildlife Service and it is determined that the project will not adversely affect listed species or critical habitat, it need not engage in formal consultation; LBP-13-9, 78 NRC 100 (2013)



## LEGAL CITATIONS INDEX STATUTES

Atomic Energy Act, 182a

applicants for nuclear power plant operating licenses are required to include technical specifications as part of the license; DD-13-3, 78 NRC 575 (2013)

Atomic Energy Act, 189a, 42 U.S.C. § 2239(a)(1)(A)

if licensee sought to relocate its surveillance frequencies from its operating license to a licensee-controlled document, then it would need to request a license amendment, which would trigger an opportunity for a member of the public to request a hearing; CLI-13-10, 78 NRC 568 n.35 (2013)

license amendments are subject to a hearing opportunity; CLI-13-9, 78 NRC 554-55 (2013)

Atomic Energy Act, 274, 42 U.S.C. § 2021

NRC is authorized to enter into an agreement with the governor of any state if it finds that the state's regulatory program is adequate to protect the public health and safety with respect to the materials the state seeks to regulate and is compatible with NRC's program for regulation of such materials; CLI-13-6, 78 NRC 158 (2013)

NRC is not permitted to retain jurisdiction over a site at a licensee's request where the state seeks to assume regulatory authority over the site and meets the "adequacy" and "compatibility" criteria; CLI-13-6, 78 NRC 158 (2013)

Atomic Energy Act, 274(l), 42 U.S.C. § 2021(l)

state's motion for cross-examination was granted, insofar as it would have a reasonable opportunity to examine witnesses pursuant to NRC regulations; LBP-13-13, 78 NRC 277-78 (2013)

Atomic Energy Act, 42 U.S.C. § 2133

forty-year operating licenses can be renewed for an additional 20 years; LBP-13-13, 78 NRC 279-80 (2013)

Endangered Species Act, 7

agencies are required to confer with the Fish and Wildlife Service on any action that is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat; LBP-13-9, 78 NRC 95 (2013)

this section applies only where threatened and endangered species or critical habitats are present and impacts on a species are expected as a result of the proposed project; LBP-13-9, 78 NRC 96 (2013)

National Environmental Policy Act, 102(2)(C), 42 U.S.C. § 4332(2)(C)

agencies are required to create an environmental impact statement, and the moment at which an agency must have a final statement ready is the time at which it makes a recommendation or report on a proposal for federal action; LBP-13-10, 78 NRC 145 (2013)

federal agencies must prepare an environmental impact statement before taking a major federal action significantly affecting the quality of the human environment; LBP-13-13, 78 NRC 272, 284-85, 508, 524 (2013)

NRC is required to prepare a detailed statement discussing the environmental impacts, alternatives, and mitigation measures for any major federal action significantly affecting the quality of the human environment; CLI-13-7, 78 NRC 210 (2013)

National Environmental Policy Act, 102(2)(C)(v), 42 U.S.C. § 4332(2)(C)(v)  
nonspeculative irreversible and irretrievable commitment of resources requires that an environmental report provide an impacts analysis of such an occurrence; LBP-13-10, 78 NRC 137 (2013)

National Environmental Policy Act, 42 U.S.C. §§ 4321-4370 (2006)

contention that NRC has promulgated a regulation that violates the NEPA is inadmissible; LBP-13-12, 78 NRC 242 (2013)

**LEGAL CITATIONS INDEX**  
**STATUTES**

Nuclear Waste Policy Act, 114(f)(4), 42 U.S.C. § 10134(f)(4)  
NRC is directed to adopt the DOE EIS to the extent practicable; CLI-13-8, 78 NRC 232 (2013)

**LEGAL CITATIONS INDEX  
OTHERS**

Gov't Accountability Off., Principles of Federal Appropriations Law, Vol. I, at 2-21, GAO-04-261SP (3d ed. 2004)

existence of a specific appropriation for licensing activities prevents NRC, under well-settled principles of appropriations law, from using its general appropriations for those activities; CLI-13-8, 78 NRC 235 (2013)

N.J. Admin. Code §§ 7.28-6.1, 12.8, 12.9, 12.10, 12.11, and 12.12 because New Jersey has adopted more stringent criteria for license termination under restricted release than for unrestricted release, as well as more conservative criteria than NRC's, New Jersey's regulations are compatible with NRC's agreement-state policy; CLI-13-6, 78 NRC 164 (2013)



## SUBJECT INDEX

### ABEYANCE OF CONTENTION

as an exercise of the Commission's inherent supervisory authority over NRC adjudications, it directs that waste storage and any related contentions be held in abeyance pending further order; CLI-13-7, 78 NRC 199 (2013); LBP-13-8, 78 NRC 1 (2013); LBP-13-13, 78 NRC 246 (2013)

### ACCIDENTS

criteria for limiting conditions for operation address aspects of reactor operation that contribute to prevention of accidents and provide the capability to provide immediate mitigation of accidents; DD-13-3, 78 NRC 571 (2013)

See also Design Basis Accident

### ACCIDENTS, LOSS-OF-COOLANT

establishing safety limits for stored irradiated fuel is not appropriate, but measures to prevent a significant loss of coolant inventory under accident conditions that could challenge the cooling of the stored fuel are documented in the updated final safety analysis report; DD-13-3, 78 NRC 571 (2013)

### ACCIDENTS, SEVERE

contention that license renewal application lacks supporting documentation providing analysis detailing licensee's assumptions that the ice condenser containment can withstand severe accidents without leaking is inadmissible; LBP-13-8, 78 NRC 1 (2013)

nuclear power reactors must have emergency plans in place to respond to accidents despite the fact that Table B-1 within 10 C.F.R. Part 51 concludes that the environmental impacts of both design basis and severe accidents at a nuclear reactor are small for all plants; LBP-13-13, 78 NRC 246 (2013)

See also Severe Accident Mitigation Alternatives; Severe Accident Mitigation Alternatives Analysis

### ADJUDICATORY PROCEEDINGS

NRC has discretion to transact its business broadly, through rulemaking, or case by case, through adjudication; CLI-13-7, 78 NRC 199 (2013)

soundness of relocating certain surveillance frequencies from operating license technical specifications to licensee-controlled documents is better resolved in the context of a concrete dispute, where all of the parties have a stake in the outcome of the litigation; CLI-13-10, 78 NRC 563 (2013)

subject to exceptions, the presiding officer must adhere to the schedule set forth in 10 C.F.R. Part 2, Appendix D; CLI-13-8, 78 NRC 219 (2013)

See also Evidentiary Hearings

### ADMINISTRATIVE CONTROLS

licensee must implement managerial and administrative controls to ensure safe operation through implementation of the facility's quality assurance program; DD-13-3, 78 NRC 571 (2013)

### ADVISORY OPINIONS

Commission disfavors issuance of advisory opinions; CLI-13-10, 78 NRC 563 (2013)

### AFFIDAVITS

rule waiver petitions must include an affidavit that states with particularity the special circumstances that justify waiver of the rule; CLI-13-7, 78 NRC 199 (2013); LBP-13-12, 78 NRC 239 (2013)

### AGING MANAGEMENT

although commitment to implement an aging management plan consistent with the GALL Report is an acceptable method for compliance with 10 C.F.R. 54.21(c)(1)(ii), such a commitment does not absolve the applicant from demonstrating, prior to issuance of a renewed license, that the plan is indeed consistent with the GALL Report; LBP-13-13, 78 NRC 246 (2013)

## SUBJECT INDEX

applicants must demonstrate that they have programs in place that will effectively manage the effects of aging for specific types of structures and components during the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

by a preponderance of the evidence, applicant has provided reasonable assurance that the effects of aging on buried pipes that contain or may contain radioactive fluids can be adequately managed during the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

cables important to safety must be designed to meet their intended function for the environment that they are subjected to and if cables have been exposed to conditions for which they are not designed, licensees must demonstrate, through testing or monitoring, reasonable assurance that the cables can perform their intended design function for the licensed operating term; DD-13-2, 78 NRC 185 (2013) commitment to implement an aging management plan consistent with the GALL Report is an acceptable method for compliance with 10 C.F.R. 54.21(c)(1)(iii); LBP-13-13, 78 NRC 246 (2013)

commitments in the updated final safety analysis report and aging management plan are legally binding as part of the current licensing basis throughout the period of extended operation and can only be changed through the section 50.59 process; LBP-13-13, 78 NRC 246 (2013)

contention alleging that licensee had a repeated pattern of violations which could undermine its ability to manage aging during the period of extended operations is not within the scope of license renewal; LBP-13-8, 78 NRC 1 (2013)

contention that ice condenser containments lack acceptable AMPs to adequately maintain critical components of the ice condenser containment for 20 years of additional operation is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that offers no explanation how its assertions are directly relevant to applicant's ability to manage the effects of aging during the renewal term is inadmissible; LBP-13-8, 78 NRC 1 (2013)

critical aspects of an aging management plan such as a commitment for buried pipes can be captured in the updated final safety analysis report supplement; LBP-13-13, 78 NRC 246 (2013)

each reactor license renewal application must contain a list of structures and components subject to aging management review; LBP-13-13, 78 NRC 246 (2013)

if applicant uses a method other than that identified in NUREG-1801, Generic Aging Lessons Learned Report, for managing effects of aging at its plant, then applicant should demonstrate to NRC Staff reviewers that its program includes the ten elements cited in the GALL Report and will likewise be effective; LBP-13-13, 78 NRC 246 (2013)

incorporation by reference of the applicable section of the GALL Report is permissible, but applicant must also provide sufficient plant-specific information to demonstrate that its aging management plan will be designed and implemented consistent with the report; LBP-13-13, 78 NRC 246 (2013)

integrated plant assessment must demonstrate that effects of aging will be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

later revisions to license renewal application that bring the plant into compliance with GALL-2 have generally been deemed acceptable; LBP-13-13, 78 NRC 246 (2013)

license renewal applicant is required to list structures and components subject to an aging management review; LBP-13-8, 78 NRC 1 (2013)

license renewal applicant must present an aging management plan with sufficient information that NRC will be able to draw its own independent conclusion as to whether the applicant's programs are in fact consistent with the GALL Report; LBP-13-13, 78 NRC 246 (2013)

license renewal applicant must provide a general description of the corporate-wide and plant-specific procedures sufficient to show that the ten elemental attributes of GALL have been addressed so as to demonstrate that the effects of aging on buried pipes will be adequately managed throughout the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

license renewal applicant's use of an aging management program identified in NUREG-1801, Generic Aging Lessons Learned Report, constitutes reasonable assurance that it will manage the targeted aging effect during the renewal period; LBP-13-13, 78 NRC 246 (2013)

license renewal applications must include an integrated plant assessment demonstrating that effects of aging on plant systems, structures, and components will be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation; LBP-13-8, 78 NRC 1 (2013)

## SUBJECT INDEX

license renewal safety reviews are generally limited to aging-related issues because NRC recognizes that it has the ongoing responsibility to oversee the safety and security of operating nuclear reactors, and maintains an aggressive and ongoing program to oversee plant operation; LBP-13-13, 78 NRC 246 (2013)

licensees must assess the condition of their components, monitor performance of structures, systems, and components to ensure that they can fulfill their intended functions, and establish a suitable test program to demonstrate that components will perform satisfactorily in service; DD-13-2, 78 NRC 185 (2013)

NRC Staff must draw its own independent conclusion as to whether applicant's programs are in fact consistent with the GALL Report; LBP-13-13, 78 NRC 246 (2013)

only structures and components with active functions that are readily monitorable are excluded from aging management review; LBP-13-13, 78 NRC 246 (2013)

passive systems, structures, and components are subject to an aging management review only if they are long-lived, that is, not subject to replacement based on a qualified life or specified time period; LBP-13-13, 78 NRC 246 (2013)

reference to an aging management plan in the GALL Report does not insulate that program from challenge in litigation; LBP-13-13, 78 NRC 246 (2013)

review consists of identifying the aging effects, and whether the aging management plans will manage aging effects and demonstrate that passive, long-lived structures, systems, and components will perform their intended functions during the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

review only covers systems, structures, and components, that perform their intended function without moving parts or without a change in configuration or properties; LBP-13-13, 78 NRC 246 (2013)

safety contention challenging aging management of electrical transformers is decided; LBP-13-13, 78 NRC 246 (2013)

safety contentions challenging aging management of non-environmentally qualified inaccessible medium-voltage cables and wiring are decided; LBP-13-13, 78 NRC 246 (2013)

statements in the license renewal application promising to develop and implement an aging management plan that would be consistent with the NRC guidance document applicable at the time the application was submitted is insufficient; LBP-13-13, 78 NRC 246 (2013)

structures and components considered passive and designated as subject to aging management review are listed in 10 C.F.R. 54.21(a)(1)(i); LBP-13-13, 78 NRC 246 (2013)

structures and components subject to aging management review include those that perform an intended function, as described in section 54.4; LBP-13-13, 78 NRC 246 (2013)

structures, systems, and components are passive if they perform their intended function without moving parts or without a change in configuration or properties and the effects of aging degradation for these components are not readily monitorable; LBP-13-13, 78 NRC 246 (2013)

the mere fact that the intended function of transformers is being monitored in accordance with the current licensing basis does not exempt them from needing to be included in an aging management review program for license renewal; LBP-13-13, 78 NRC 246 (2013)

transformers perform their intended function through a change in state similar to switchgear, power supplies, battery chargers, and power inverters, which have been excluded from an aging management review; LBP-13-13, 78 NRC 246 (2013)

**AGREEMENT STATE PROGRAMS**

because New Jersey has adopted more stringent criteria for license termination under restricted release than for unrestricted release, as well as more conservative criteria than NRC's, New Jersey's regulations are compatible with NRC's agreement-state policy; CLI-13-6, 78 NRC 155 (2013)

NRC is authorized to enter into an agreement with the governor of any state if it finds that the state's regulatory program is adequate to protect the public health and safety with respect to the materials the state seeks to regulate and is compatible with NRC's program for regulation of such materials; CLI-13-6, 78 NRC 155 (2013)

NRC is not permitted to retain jurisdiction over a site at a licensee's request where the state seeks to assume regulatory authority over the site and meets the "adequacy" and "compatibility" criteria; CLI-13-6, 78 NRC 155 (2013)

## SUBJECT INDEX

### AIR POLLUTION

contention that the draft environmental impact statement fails to take a hard look at impacts of the proposed mine related to air emissions and liquid waste disposal is inadmissible; LBP-13-9, 78 NRC 37 (2013)

### ALARA PRINCIPLE

nothing in NRC license termination regulations, including the ALARA principle incorporated into section 20.1403(a), calls for a comparison of doses of the restricted-release and unrestricted-release decommissioning options; CLI-13-6, 78 NRC 155 (2013)

section 20.1403(a) calls for a licensee seeking to use restricted release to analyze whether it would be cost-beneficial to remove enough radioactive contamination from the site that doses to the public are no higher than 25 mrem per year without reliance on restricted-release controls; CLI-13-6, 78 NRC 155 (2013)

sites will be considered acceptable for license termination under restricted conditions if licensee can demonstrate that further reductions in residual radioactivity necessary to comply with the provisions of section 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA; CLI-13-6, 78 NRC 155 (2013)

### ALTERNATE CONCENTRATION LIMITS

applicant's use of ACLs is a legal right; LBP-13-9, 78 NRC 37 (2013)

claim that ACL could not be accurately generated until the post-operational decommissioning process did not account for the possible creation of a bounding analysis based on the historical experience at other ISR sites; LBP-13-10, 78 NRC 117 (2013)

purpose of ACLs is to address situations where restoring groundwater to baseline conditions or MCLs would not be practicable; LBP-13-9, 78 NRC 37 (2013)

three alternative standards for groundwater restoration at ISR facilities are background concentrations, maximum values from chart 5C, or an ACL; LBP-13-9, 78 NRC 37 (2013)

### AMENDMENT OF CONTENTIONS

after the section 2.309(b) deadline has passed for submitting an initial hearing petition with one or more accompanying contentions, petitioner/intervenor who wishes to amend an already submitted or admitted contention or gain admission of a new contention must file a motion for leave to file such a new or amended contention; LBP-13-10, 78 NRC 117 (2013)

degree to which new/amended contentions will be considered timely submitted is generally defined by the presiding officer as a specific period following the triggering event that makes the previously unavailable/materially different information available so as to be the basis for the new/amended contention; LBP-13-10, 78 NRC 117 (2013)

if a contention is rendered moot by information supplied by applicant or considered by Staff in a draft EIS, the party that filed the original contention of omission must file a new or amended contention if it wishes to challenge the adequacy or sufficiency of the NRC Staff's treatment of the relevant issue; LBP-13-9, 78 NRC 37 (2013)

if the reason that a motion to admit a new or amended contention was filed after the deadline does not relate to the substance of the filing itself, the standard in 10 C.F.R. 2.307 applies in determining whether the motion can be considered timely; LBP-13-9, 78 NRC 37 (2013)

intervenor attempting to litigate an issue based on expressed concerns about the draft environmental impact statement may need to amend the admitted contention or submit a new contention if the information in the DEIS is sufficiently different from the information in the environmental report that supported the original contention's admission; LBP-13-9, 78 NRC 37 (2013)

intervenors and potential intervenors have a period of time to file new or amended contentions in response to a draft environmental impact statement; LBP-13-9, 78 NRC 37 (2013)

new or amended contentions generally must meet the six admissibility factors specified in section 2.309(f)(1); LBP-13-10, 78 NRC 117 (2013)

time for submitting a new/amended contention motion based on information that would be newly available, materially different, and otherwise timely submitted given the information's availability can be extended if the extension request is based on good cause; LBP-13-10, 78 NRC 117 (2013)

## SUBJECT INDEX

### AMICUS PLEADINGS

although MRC rules do not provide for filing of amicus curiae briefs on motions filed pursuant to 10 C.F.R. 2.323, as a matter of discretion, the Commission has reviewed both the brief and NRC Staff's opposition; CLI-13-9, 78 NRC 551 (2013)  
briefs may be filed when the Commission has taken up a matter pursuant to section 2.341 or *sua sponte*; CLI-13-9, 78 NRC 551 (2013)

### APPEALS

because the Commission's vacatur order does not address the merits, it need not address an argument that NRC Staff impermissibly raises objections to the merits of the board's decision without filing a petition for review; CLI-13-9, 78 NRC 551 (2013)  
controversy often ends during the pendency of appeals before the Commission or the Appeal Board; CLI-13-9, 78 NRC 551 (2013)  
dismissal of an appeal with prejudice, similar to termination of a proceeding with prejudice, generally implies that the Commission has ruled on the merits of the appeal and such ruling is reserved for unusual situations involving substantial prejudice to an opposing party or to the public interest in general; CLI-13-10, 78 NRC 563 (2013)  
general proposition that an appeal is not moot if there is a possibility of similar acts recurring in the future applies to instances where the same litigants likely will be subject to similar future action; CLI-13-9, 78 NRC 551 (2013)  
licensee challenged NRC Staff's use of immediately effective orders after fulfilling the underlying requirements of those orders; CLI-13-9, 78 NRC 551 (2013)  
opposing party's litigation expenses do not provide a basis for departing from the usual rule that a dismissal should be without prejudice; CLI-13-10, 78 NRC 563 (2013)  
possibility that an issue may arise in the future is not grounds to continue with an appeal in a proceeding where no live controversy remains between the litigants; CLI-13-10, 78 NRC 563 (2013)  
should a suspended adjudication resume, the Commission will consider appeals in due course, consistent with relevant Subpart J rules; CLI-13-8, 78 NRC 219 (2013)

### APPEALS, INTERLOCUTORY

piecemeal review of licensing board decisions is disfavored, but boards may refer rulings that, although interlocutory, raise significant and novel legal or policy issues or require Commission resolution to materially advance the orderly disposition of the proceeding; CLI-13-7, 78 NRC 199 (2013)

### APPELLATE REVIEW

*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 551 (2013)

### APPROPRIATIONS

existence of a specific appropriation for licensing activities prevents NRC, under well-settled principles of appropriations law, from using its general appropriations for those activities; CLI-13-8, 78 NRC 219 (2013)

if Congress does not appropriate enough money to meet the needs of a class of beneficiaries prescribed by Congress, and if Congress is silent on how to handle this predicament, the law sensibly allows the administering agency to establish reasonable priorities and classifications; CLI-13-8, 78 NRC 219 (2013)  
NRC is ordered to promptly resume the licensing process for the high-level radioactive waste repository construction authorization application unless and until Congress authoritatively says otherwise or there are no appropriated funds remaining; CLI-13-8, 78 NRC 219 (2013)

### ATOMIC ENERGY ACT

applicants for nuclear power plant operating licenses must include technical specifications as part of the license; DD-13-3, 78 NRC 571 (2013)

if licensee sought to relocate its surveillance frequencies from its operating license to a licensee-controlled document, then it would need to request a license amendment, which would trigger an opportunity for a member of the public to request a hearing; CLI-13-10, 78 NRC 563 (2013)

in the context of license renewal, NRC's safety review under Part 54 does not compromise or limit the National Environmental Policy Act; LBP-13-8, 78 NRC 1 (2013)

license amendments are subject to a hearing opportunity; CLI-13-9, 78 NRC 551 (2013)

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NRC is authorized to enter into an agreement with the governor of any state if it finds that the state's regulatory program is adequate to protect the public health and safety with respect to the materials the state seeks to regulate and is compatible with NRC's program for regulation of such materials; CLI-13-6, 78 NRC 155 (2013)

NRC is not permitted to retain jurisdiction over a site at a licensee's request where the state seeks to assume regulatory authority over the site and meets the "adequacy" and "compatibility" criteria; CLI-13-6, 78 NRC 155 (2013)

severe accident mitigation alternatives analysis is not part of the agency's safety review for license renewal under the AEA, but is instead a mitigation alternatives analysis conducted pursuant to the National Environmental Policy Act; LBP-13-8, 78 NRC 1 (2013)

### BENEFIT-COST ANALYSIS

ALARA analysis required under section 20.1403(a) calls for a licensee seeking to use restricted release to analyze whether it would be cost-beneficial to remove enough radioactive contamination from the site that doses to the public are no higher than 25 mrem per year without reliance on restricted-release controls; CLI-13-6, 78 NRC 155 (2013)

contention that severe accident mitigation alternatives analysis does not accurately reflect decontamination and cleanup costs is decided; LBP-13-13, 78 NRC 246 (2013)

eligibility test in section 20.1403(a) postulates a cost-benefit inquiry that is modeled on a traditional ALARA cost-benefit analysis, but that serves a different regulatory purpose; CLI-13-6, 78 NRC 155 (2013)

environmental impact statements serve as an environmental full disclosure law providing agency decisionmakers, as well as the President, the Congress, the Council on Environmental Quality, and the public the environmental cost-benefit information that Congress thought they should have about each qualifying federal action; LBP-13-13, 78 NRC 246 (2013)

if licensee demonstrates, through either of the two cost-benefit approaches, that removing radioactive contamination to the unrestricted-use level would not be cost-beneficial, then licensee must show that, with the addition of engineered barriers and institutional controls, the average annual dose to the public will not exceed 25 mrem per year *and* is as low as is reasonably achievable; CLI-13-6, 78 NRC 155 (2013)

licensees, in determining whether levels are ALARA, are to consider detriments, such as traffic accidents; CLI-13-6, 78 NRC 155 (2013)

offsite land use is a Category 2 impact because land use changes may be perceived by some community members as adverse and by others as beneficial, and so, NRC Staff is unable to assess generically the potential significance of site-specific offsite land use impacts; LBP-13-13, 78 NRC 246 (2013)

one of the benefits of removing enough radioactivity to cross the 25-mrem threshold is that the value of the affected property is likely to increase, and it is in this sense that NRC guidelines contemplate, as part of the ALARA analysis, a comparison between restricted release and unrestricted release; CLI-13-6, 78 NRC 155 (2013)

preponderance of the evidence supports conclusion that NRC Staff's reasoned, qualitative approach to weighing the costs and benefits of plant shutdown on property values and the local community is reasonable and satisfies regulatory requirements; LBP-13-13, 78 NRC 246 (2013)

question of material impacts hinges upon whether a severe accident mitigation alternative may be cost-beneficial to implement; LBP-13-13, 78 NRC 246 (2013)

severe accident mitigation alternatives analysis is a quantitative cost-benefit analysis, comparing the costs of a mitigation measure against its benefits; LBP-13-13, 78 NRC 246 (2013)

supplemental environmental impact statements for license renewal are not required to include discussion of need for power or the economic costs and economic benefits of the proposed action or of alternatives to the proposed action; LBP-13-13, 78 NRC 246 (2013)

### BRIEFS

electronic filing is required, unless the presiding officer grants an exemption permitting an alternative filing method for good cause shown, or unless the filing falls within the scope of an exception; CLI-13-9, 78 NRC 551 (2013)

See also Reply Briefs

### BURDEN OF PERSUASION

rule waiver petitioners face a substantial burden; CLI-13-7, 78 NRC 199 (2013)

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### BURDEN OF PROOF

applicant has the burden of proof on safety issues in a licensing proceeding; LBP-13-13, 78 NRC 246 (2013)

NRC Staff has the overall burden of complying with NEPA; LBP-13-13, 78 NRC 246 (2013)

### BURIED STRUCTURES, SYSTEMS, AND COMPONENTS

by a preponderance of the evidence, applicant has provided reasonable assurance that the effects of aging on buried pipes that contain or may contain radioactive fluids can be adequately managed during the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

inadvertent radiological releases must be controlled to ensure that dose exposures are below regulatory limits; LBP-13-13, 78 NRC 246 (2013)

### BYPRODUCT MATERIALS

contention that the draft environmental impact statement fails to include a reviewable plan for disposal of 11e(2) byproduct material is inadmissible; LBP-13-9, 78 NRC 37 (2013)

policies set forth by NEPA prevent NRC Staff from segmenting the disposal issues from the inquiry into whether applicant will be allowed to create 11e(2) byproduct material in the first instance; LBP-13-9, 78 NRC 37 (2013)

### CABLES

cables important to safety must be designed to meet their intended function for the environment that they are subjected to and if cables have been exposed to conditions for which they are not designed, licensees must demonstrate, through testing or monitoring, reasonable assurance that the cables can perform their intended design function for the licensed operating term; DD-13-2, 78 NRC 185 (2013)

cables subject to the environmental qualification standards of 10 C.F.R. 50.49 are important to the safety of a nuclear power plant and are required to function during an accident when exposed to harsh environmental conditions; LBP-13-13, 78 NRC 246 (2013)

environmentally qualified cable is defined in 10 C.F.R. 50.49; LBP-13-13, 78 NRC 246 (2013)

request for enforcement action to address concerns about operability of the submerged and/or wetted

non-environmentally qualified inaccessible cables is denied; DD-13-2, 78 NRC 185 (2013)

safety contentions challenging aging management of non-environmentally qualified inaccessible

medium-voltage cables and wiring is decided; LBP-13-13, 78 NRC 246 (2013)

### CANCER

license renewal contention alleging higher cancer death rates in local counties than the state average is inadmissible because it is based on unsupported speculation; LBP-13-8, 78 NRC 1 (2013)

### CASE MANAGEMENT

parties filed proposed questions for the board to ask at the evidentiary hearing; LBP-13-13, 78 NRC 246 (2013)

### CASE OR CONTROVERSY

Constitution permits the Supreme Court to decide legal questions only in the context of actual cases or controversies; CLI-13-9, 78 NRC 551 (2013)

### COMPLIANCE

if compliance with the current licensing basis cannot be fully achieved during the current licensing term and must be consummated during the period of extended operation, then a contention raising issues about such CLB compliance is within the scope of license renewal; LBP-13-8, 78 NRC 1 (2013)

license renewal should not include a new, broad-scooped inquiry into compliance that is separate from and parallel to ongoing compliance oversight activity; LBP-13-8, 78 NRC 1 (2013)

licensee's compliance with the current licensing basis is not within the scope of a license renewal proceeding; LBP-13-8, 78 NRC 1 (2013)

### COMPUTER MODELING

applicant's severe accident mitigation alternatives analysis is sufficiently site specific and its use and NRC Staff's approval of the NUREG-1150 TIMDEC and CDNFRM input values is reasonable and appropriate and satisfies the requirements under NEPA; LBP-13-13, 78 NRC 246 (2013)

because the severe accident mitigation alternatives analysis is largely quantitative, resting on inputs used in computer modeling, it will always be possible to propose that the analysis use one or more other inputs; LBP-13-13, 78 NRC 246 (2013)

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### CONFIRMATORY ACTION LETTER

criteria of 10 C.F.R. 50.59 were used as an analytical tool to address the question of whether a confirmatory action letter issued to the licensee by the NRC Staff constituted a de facto license amendment that would be subject to a hearing opportunity; LBP-13-11, 78 NRC 177 (2013)

### CONNECTED ACTIONS

contention that the draft supplemental environmental impact statement fails to consider connected actions is admissible; LBP-13-9, 78 NRC 37 (2013)  
environmental impact statements should be issued to include other related actions only when those related actions have been formally proposed and are pending before the relevant agency; LBP-13-10, 78 NRC 117 (2013)

NEPA does not require an agency to consider the possible environmental impacts of less imminent actions when preparing the impact statement on proposed actions; LBP-13-10, 78 NRC 117 (2013) pertinent to the question of whether a facility is a connected action is whether the facility lacks any independent utility in the absence of the completion of the other sites; LBP-13-10, 78 NRC 117 (2013) proposals or parts of proposals that are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single EIS; LBP-13-10, 78 NRC 117 (2013)

three types of actions (connected, cumulative, and similar) are to be considered in looking to the scope of an EIS; LBP-13-10, 78 NRC 117 (2013)  
to bring NEPA into play, a possible future action must at least constitute a proposal pending before the agency (i.e., ripeness), and must be in some way interrelated with the action that the agency is actively considering (i.e., nexus); LBP-13-10, 78 NRC 117 (2013)

to determine whether actions are connected such that they should be discussed in the same environmental impact statement, an agency is to consider whether the actions automatically trigger other actions that may require an EIS, cannot or will not proceed unless other actions are taken previously or simultaneously, or are interdependent parts of a larger action and depend on the larger action for their justification; LBP-13-10, 78 NRC 117 (2013)  
to determine whether interdependence exists among the various actions at issue, courts generally have looked to see whether the first action has independent utility; LBP-13-10, 78 NRC 117 (2013)  
when developing an environmental impact statement, an agency must consider the impact of other proposed projects only if the projects are so interdependent that it would be unwise or irrational to complete one without the other; LBP-13-10, 78 NRC 117 (2013)

### CONSIDERATION OF ALTERNATIVES

admissible contention challenging consideration of alternatives must show that a particular alternative was not discussed in the draft environmental impact statement and provide some support that the alternative is reasonable; LBP-13-9, 78 NRC 37 (2013)

alternatives might not be feasible for a variety of reasons, including a failure of an alternative to meet the project's purpose and need; LBP-13-9, 78 NRC 37 (2013)  
analysis and response to state's extensive comments to the draft supplemental environmental impact statement regarding state-specific energy conservation and efficiency as a replacement alternative fulfills NRC Staff's obligation to take a hard look at alternatives; LBP-13-13, 78 NRC 246 (2013)  
contention that the draft environmental impact statement fails to consider all reasonable alternatives is inadmissible; LBP-13-9, 78 NRC 37 (2013)

development and discussion of a wide range of alternatives to any proposed federal action is so important that it is mandated by NEPA when any proposal involves unresolved conflicts concerning alternative uses of available resources, and the requirement is independent of and of wider scope than the duty to file an EIS; LBP-13-13, 78 NRC 246 (2013)

supplemental environmental impact statements for license renewal are not required to discuss need for power or economic costs and economic benefits of the proposed action or of alternatives to the proposed action; LBP-13-13, 78 NRC 246 (2013)

under NEPA, an agency need not discuss alternatives that are infeasible, ineffective, or inconsistent with the basic policy objectives for the management of the area; LBP-13-9, 78 NRC 37 (2013)  
when taking the requisite hard look at environmental consequences of alternatives to the proposed licensing action, the environmental impact statement must discuss the no-action alternative; LBP-13-13, 78 NRC 246 (2013)

See also Severe Accident Mitigation Alternatives; Severe Accident Mitigation Alternatives Analysis

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### CONSTRUCTION AUTHORIZATION APPLICATION

before a final decision approving or disapproving a construction authorization application can be reached, not only must NRC Staff complete its safety and environmental reviews but a formal hearing must be conducted, and the Commission's own review of both contested and uncontested issues must take place; CLI-13-8, 78 NRC 219 (2013)

### CONSTRUCTION OF MEANING

reasonable assurance is not quantified as equivalent to a 95% (or any other percent) confidence level, but is based on sound technical judgment of the particulars of a case and on compliance with NRC regulations; LBP-13-13, 78 NRC 246 (2013)

"reductions in residual radioactivity" refers only to dose reductions to the public that can be accomplished solely through the steps associated with unrestricted-release decommissioning, i.e., removal of contaminated material or decontamination; CLI-13-6, 78 NRC 155 (2013)

### CONSTRUCTION PERMITS

applications must include the principal design criteria for a proposed facility and describe the design bases and their relationship to the principal design criteria in the preliminary safety analysis report; DD-13-3, 78 NRC 571 (2013)

### CONSULTATION DUTY

agencies are required to confer with the Fish and Wildlife Service on any action that is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat; LBP-13-9, 78 NRC 37 (2013)

claim that NRC Staff did not engage in the consultation process relevant to issues addressed by the Migratory Bird Treaty Act and that the impacts to wildlife with respect to this Act are inadequately analyzed is inadmissible; LBP-13-9, 78 NRC 37 (2013)

if NRC engages in an informal consultation with the Fish and Wildlife Service and it is determined that the project will not adversely affect listed species or critical habitat, it need not engage in formal consultation; LBP-13-9, 78 NRC 37 (2013)

issue of the alleged failure to consult with the tribe on historic and cultural resources is material and within the scope of a materials license proceeding; LBP-13-9, 78 NRC 37 (2013)

portions of a contention relevant to the completion of the Endangered Species Act § 7 consultation process and the adequacy of the NRC Staff's impact analyses relevant to the three named species meet admissibility standards; LBP-13-9, 78 NRC 37 (2013)

### CONTAINMENT

contention that ice condenser containments lack acceptable aging management plans to adequately maintain critical components of the containment for 20 years of additional operation is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that license renewal application lacks supporting documentation providing analysis detailing licensee's assumptions that the ice condenser containment can withstand severe accidents without leaking is inadmissible; LBP-13-8, 78 NRC 1 (2013)

### CONTAINMENT DESIGN

containments must be designed to remain essentially leaktight during postulated accidents; LBP-13-8, 78 NRC 1 (2013)

### CONTAINMENT SYSTEMS

request that the applicability for technical specification be revised to include secondary containment, secondary containment isolation dampers, standby gas treatment system, control room emergency ventilation, and control room air conditioning system, whenever irradiated fuel is stored in the spent fuel pool is denied; DD-13-3, 78 NRC 571 (2013)

### CONTENTIONS

admitted contentions of omission may be rendered moot by subsequent license-related documents filed by the NRC Staff that address the alleged omission; LBP-13-9, 78 NRC 37 (2013)

based on its language, a contention can be characterized as a contention of omission, a contention of adequacy, or both; LBP-13-9, 78 NRC 37 (2013)

contention of omission is one that alleges an application suffers from an improper omission, whereas contention of adequacy raises a specific substantive challenge to how particular information or issues have been discussed in the application; LBP-13-9, 78 NRC 37 (2013)

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contentions challenging a severe accident mitigation alternatives analysis must identify a deficiency that plausibly could alter the overall result of the analysis in a material way; LBP-13-13, 78 NRC 246 (2013)

contentions of adequacy may migrate into contentions of omission; LBP-13-10, 78 NRC 117 (2013)

general discussion about contentions of omission and contentions of adequacy is provided; LBP-13-10, 78 NRC 117 (2013)

intervention petitioner must proffer at least one admissible contention; LBP-13-8, 78 NRC 1 (2013)

issues framed in contentions challenging an application generally encompass two categories alleging an informational or analytical omission from the application and/or alleging that information/analysis in the application is inadequate (as opposed to missing); LBP-13-10, 78 NRC 117 (2013)

NEPA-related contentions initially are based on applicant's environmental report which will inform the Staff's NEPA review; CLI-13-7, 78 NRC 199 (2013); LBP-13-10, 78 NRC 117 (2013)

petitioner will have an opportunity to submit contentions based on the final supplemental environmental impact statement if appropriate; LBP-13-9, 78 NRC 37 (2013)

to be successful, intervenor must point to a deficiency that renders the severe accident mitigation alternatives analysis unreasonable under NEPA; LBP-13-13, 78 NRC 246 (2013)

to be successful, intervenors must demonstrate with adequate support that NRC Staff failed to take a hard look at important environmental questions or failed to provide a reasonable analysis; LBP-13-13, 78 NRC 246 (2013)

two primary types of contentions are contentions of omission and contentions of adequacy; LBP-13-9, 78 NRC 37 (2013)

See also Abeyance of Contention; Amendment of Contentions

**CONTENTIONS, ADMISSIBILITY**

absent a petition for a waiver, no rule or regulation of the Commission is subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding; LBP-13-12, 78 NRC 239 (2013)

adjudicating Category 1 issues site by site based merely on a claim of new and significant information would defeat the purpose of resolving generic issues in a generic EIS; CLI-13-7, 78 NRC 199 (2013)

admissible contention challenging consideration of alternatives must show that a particular alternative was not discussed in the draft environmental impact statement and provide some support that the alternative is reasonable; LBP-13-9, 78 NRC 37 (2013)

admissible contentions must meet all of the requirements of 10 C.F.R. 2.309(f)(1)(i)-(vi); LBP-13-8, 78 NRC 1 (2013)

admitted contentions challenging applicant's environmental report may, in appropriate circumstances, function as challenges to similar portions of the Staff's environmental impact statement; LBP-13-9, 78 NRC 37 (2013)

after the section 2.309(b) deadline has passed for submitting an initial hearing petition with one or more accompanying contentions, petitioner/intervenor who wishes to amend an already submitted or admitted contention or gain admission of a new contention must file a motion for leave to file such a new or amended contention; LBP-13-10, 78 NRC 117 (2013)

although contention contesting applicant's environmental report generally may be viewed as a challenge to NRC Staff's subsequent draft environmental impact statement, new claims must be raised in a new or amended contention; LBP-13-10, 78 NRC 117 (2013)

as to whether the connected action aspect of 40 C.F.R. 1508.25(a)(1) supports an improper-segmentation contention's admissibility, petitioners have not provided sufficient supporting information to show that a genuine dispute exists on the material issue; LBP-13-10, 78 NRC 117 (2013)

bald allegations do not suffice to support contention admissibility; LBP-13-8, 78 NRC 1 (2013)

because petitioner fails to address information in the draft supplemental environmental impact statement and generic EIS that is relevant to the issue it raises, the board must reject arguments relating to liquid waste disposal; LBP-13-9, 78 NRC 37 (2013)

because primary responsibility to address and comply with AEA safety-related requirements resides with a license applicant, that application, not the Staff's application review, is the focus of any safety-related contentions and thus the migration tenet does not apply; LBP-13-10, 78 NRC 117 (2013)

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boards may appropriately view petitioner's supporting information in a light favorable to the petitioner, but neither mere speculation nor bare or conclusory assertions, even by an expert, will suffice to allow the admission of a proffered contention; LBP-13-10, 78 NRC 117 (2013)

boards may construe an admitted contention contesting the environmental report as a challenge to a subsequently issued draft or final environmental impact statement without the need for intervenors to file a new or amended contention; LBP-13-9, 78 NRC 37 (2013)

boards may view petitioner's supporting information in a light favorable to the petitioner, but the petitioner (not the board) is required to supply all of the required elements for a valid intervention petition; LBP-13-8, 78 NRC 1 (2013)

boards must reject intervenors' arguments that fail to specifically address the draft environmental impact statement; LBP-13-9, 78 NRC 37 (2013)

challenges to Category 1 findings based on new and significant information require a waiver of 10 C.F.R. Part 51, Subpart A, Appendix B, in order to be litigated in a license renewal adjudication; CLI-13-7, 78 NRC 199 (2013)

challenges to NRC rules and regulations are generally prohibited, with limited exceptions, in view of expanding opportunities for participation in Commission rulemaking proceedings and increased emphasis on rulemaking proceedings as the appropriate forum for settling basic policy issues; CLI-13-7, 78 NRC 199 (2013)

challenges to the generic environmental impact statement's determinations amount to attacks on NRC regulations and are not within the scope of license renewal proceedings; LBP-13-8, 78 NRC 1 (2013)

claim that NRC Staff did not engage in the consultation process relevant to issues addressed by the Migratory Bird Treaty Act and that impacts to wildlife with respect to this Act are inadequately analyzed is inadmissible; LBP-13-9, 78 NRC 37 (2013)

claim that the draft environmental impact statement does not adequately assess the impacts to threatened and endangered species is rejected; LBP-13-9, 78 NRC 37 (2013)

compliance with the current licensing basis is not within the scope of a license renewal proceeding; LBP-13-8, 78 NRC 1 (2013)

contention alleging a failure to protect historic and cultural resources is admissible; LBP-13-9, 78 NRC 37 (2013)

contention alleging that license renewal application fails to consider plutonium fuel use, which would place it outside the current licensing basis, is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention alleging that licensee had a repeated pattern of violations which could undermine its ability to manage aging during the period of extended operations is not within the scope of license renewal; LBP-13-8, 78 NRC 1 (2013)

contention asserting that applicant's Integrated Plant Assessment for the license renewal application fails to identify and assess safety-related incidents at the plant in its required time-limited aging analysis is a safety contention and is not admissible; LBP-13-8, 78 NRC 1 (2013)

contention challenging sufficiency of the draft environmental impact statement as it pertains to the protection of cultural resources falls within the migration tenet and is admissible; LBP-13-9, 78 NRC 37 (2013)

contention charging that a licensee's poor safety culture could undermine its ability to manage aging during the period of extended operations is not within the scope of license renewal; LBP-13-8, 78 NRC 1 (2013)

contention rule is strict by design and does not permit the filing of a vague, unparticularized contention, unsupported by affidavit, expert, or documentary material; LBP-13-9, 78 NRC 37 (2013)

contention that applicant fails to include need-for-power analyses in its environmental report for operating license renewal is inadmissible; LBP-13-12, 78 NRC 239 (2013)

contention that challenges lack of severe accident mitigation alternatives analysis in applicant's environmental report is inadmissible; CLI-13-7, 78 NRC 199 (2013)

contention that challenges the entire steam generator replacement project, rather than any aspect of the proposed changes to four technical specifications identified in the license amendment request is outside the scope of this proceeding; LBP-13-11, 78 NRC 177 (2013)

contention that does not focus at all on the technical specifications that are the subject of its request raises no issues that are material to any findings NRC must make to approve the license amendment request; LBP-13-11, 78 NRC 177 (2013)

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contention that draft environmental impact statement fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that draft environmental impact statement fails to analyze environmental impacts that will occur if applicant cannot restore groundwater to primary or secondary limits is admissible; LBP-13-10, 78 NRC 117 (2013)

contention that draft environmental impact statement fails to comply with NEPA with regard to impacts on wildlife, and fails to comply with the Endangered Species Act and Migratory Bird Treaty Act is admissible in part; LBP-13-9, 78 NRC 37 (2013)

contention that draft environmental impact statement fails to include an adequate hydrogeological analysis to assess potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that draft environmental impact statement lacks an adequate description of the present baseline (i.e., original or pre-mining) groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner, using proper sampling methodologies is admissible; LBP-13-10, 78 NRC 117 (2013)

contention that ice condenser containments lack acceptable aging management plans to adequately maintain critical components of the containment for 20 years of additional operation is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that is primarily based on the fact that steam generator replacements in other reactors have experienced problems is not adequately supported; LBP-13-11, 78 NRC 177 (2013)

contention that it is premature to relicense nuclear facilities with existing permits that will not expire for 11 to 14 years because relicensing more than 10 years in advance of the expiration of the existing licenses will result in environmental impact statements that will be stale by the time the existing licenses expire is inadmissible; LBP-13-12, 78 NRC 239 (2013)

contention that license renewal application fails to adequately address the risks of flooding from failure of upstream dams is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that license renewal application lacks supporting documentation providing analysis detailing licensee's assumptions that the ice condenser containment can withstand severe accidents without leaking is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that licensee's history of managing whistleblower complaints regarding safety issues demonstrates that the plant will not be operated safely during the license renewal term is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that NRC has failed to engage other relevant federal, state, and local agencies and has not analyzed impacts subject to jurisdiction and control of these other agencies, and has thus failed to comply with NEPA's action-forcing mandate and general purpose is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that NRC has failed to properly define the scope of the proposed major federal action and instead improperly segments the project is inadmissible; LBP-13-10, 78 NRC 117 (2013)

contention that NRC has promulgated a regulation that violates the National Environmental Policy Act is inadmissible; LBP-13-12, 78 NRC 239 (2013)

contention that offers no explanation of how its assertions are directly relevant to applicant's ability to manage the effects of aging during the renewal term is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that provides no reference to any specific portion of the license amendment request that petitioners dispute is inadmissible; LBP-13-11, 78 NRC 177 (2013)

contention that requiring a tribe to formulate contentions before a final EIS is released and failing to follow scoping process violates NEPA is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that steam generator replacement project be deemed an experiment and that an adjudicatory public hearing be convened for independent analysis of the project before it is implemented is inadmissible; LBP-13-11, 78 NRC 177 (2013)

contention that the draft environmental impact statement fails to adequately analyze cumulative impacts is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that the draft environmental impact statement fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that the draft environmental impact statement fails to adequately assess cumulative impacts of the proposed action and another proposed ISL uranium mining operation is inadmissible; LBP-13-10, 78 NRC 117 (2013)

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contention that the draft environmental impact statement fails to adequately describe or analyze proposed mitigation measures is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that the draft environmental impact statement fails to analyze the environmental impacts that will occur if applicant cannot restore groundwater to primary or secondary limits is admissible; LBP-13-10, 78 NRC 117 (2013)

contention that the draft environmental impact statement fails to consider all reasonable alternatives is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that the draft environmental impact statement fails to include a reviewable plan for disposal of 11e(2) byproduct material is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that the draft environmental impact statement fails to include adequate hydrological information to demonstrate applicant's ability to contain groundwater fluid migration is admissible; LBP-13-10, 78 NRC 117 (2013)

contention that the draft environmental impact statement fails to include an adequate hydrogeological analysis to assess adequate confinement and potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that the draft environmental impact statement fails to include necessary information for adequate determination of baseline groundwater quality is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that the draft environmental impact statement fails to take a hard look at impacts of the proposed mine related to air emissions and liquid waste disposal is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that the draft supplemental environmental impact statement fails to consider connected actions is admissible; LBP-13-9, 78 NRC 37 (2013)

contentions alleging that applicants' handling of past safety issues at the plants demonstrated that applicants could not provide reasonable assurance that they would manage the effects of aging during the license renewal term are inadmissible; LBP-13-8, 78 NRC 1 (2013)

contentions based on bare assertions and speculation will not be admitted; LBP-13-8, 78 NRC 1 (2013)

contentions must point to a deficiency in the application, not merely suggest other ways an analysis could have been done or other details that could have been included; CLI-13-7, 78 NRC 199 (2013)

contentions must satisfy the twin precepts of timeliness and admissibility; LBP-13-10, 78 NRC 117 (2013)

contentions need not be proven at the admissibility stage; LBP-13-8, 78 NRC 1 (2013)

contentions that are not accompanied by sufficient factual support to raise a genuine dispute are inadmissible; LBP-13-12, 78 NRC 239 (2013)

contentions that challenge an NRC regulation are inadmissible; LBP-13-12, 78 NRC 239 (2013)

contentions that relate to current operations at a plant, as opposed to how it might operate during the period of extended operation, are inadmissible; LBP-13-8, 78 NRC 1 (2013)

degree to which new/amended contentions will be considered timely submitted is generally defined by the presiding officer as a specific period following the triggering event that makes the previously unavailable/materially different information available so as to be the basis for the new/amended contention; LBP-13-10, 78 NRC 117 (2013)

environmental analysis of severe accidents is designated as a Category 2 site-specific issue for license renewal, and therefore the SAMA analysis normally is subject to challenge in a license renewal adjudicatory proceeding; CLI-13-7, 78 NRC 199 (2013)

exception in 10 C.F.R. 51.53(c)(3)(ii)(L) operates as the functional equivalent of a Category 1 issue, removing SAMAs from litigation in certain license renewal adjudications; CLI-13-7, 78 NRC 199 (2013)

generalized grievances with the sufficiency of NRC Staff's analysis or the adequacy of included documentation are not admissible; LBP-13-9, 78 NRC 37 (2013)

good cause for late filing exists when information on which the filing is based was not previously available and is materially different from information previously available and the filing has been submitted in a timely fashion based on the availability of the subsequent information; LBP-13-9, 78 NRC 37 (2013)

if a contention is rendered moot by information supplied by applicant or considered by Staff in a draft EIS, the party that filed the original contention of omission must file a new or amended contention if it wishes to challenge the adequacy or sufficiency of the NRC Staff's treatment of the relevant issue; LBP-13-9, 78 NRC 37 (2013)

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if a party submits a proposed contention after the initial filing deadline announced in the applicable *Federal Register* notice for submitting a hearing petition, it will not be entertained absent a determination by the presiding officer that a participant has demonstrated good cause; LBP-13-9, 78 NRC 37 (2013)

if compliance with the current licensing basis cannot be fully achieved during the current licensing term and must be consummated during the period of extended operation, then a contention raising issues about such CLB compliance is within the scope of license renewal; LBP-13-8, 78 NRC 1 (2013)

if petitioner's challenge to an agency rule or regulation relates to an issue of broader significance, then filing a petition for rulemaking is the better approach; CLI-13-7, 78 NRC 199 (2013)

if the reason a motion to admit a new or amended contention was filed after the deadline does not relate to the substance of the filing itself, the standard in 10 C.F.R. 2.307 applies in determining whether the motion can be considered timely; LBP-13-9, 78 NRC 37 (2013)

in the absence of a timely analysis of the section 2.309(c)(1) and (f)(1) new/amended contention precepts by the contention's sponsor, a board is not obligated to determine whether those new/amended contention requirements could have been met relative to a migrated environmental contention; LBP-13-10, 78 NRC 117 (2013)

inquiry into future, inchoate plans of licensee would generally invite petitioners in license renewal cases to raise safety issues involving a myriad of possible future license amendments; LBP-13-8, 78 NRC 1 (2013)

intervenor attempting to litigate an issue based on expressed concerns about the draft environmental impact statement may need to amend the admitted contention or submit a new contention if the information in the DEIS is sufficiently different from the information in the environmental report that supported the original contention's admission; LBP-13-9, 78 NRC 37 (2013)

intervenor must do more than submit bald or conclusory allegations of a dispute with the applicant; LBP-13-9, 78 NRC 37 (2013)

intervention petition is denied for failure to submit an admissible contention; LBP-13-11, 78 NRC 177 (2013)

issue of the alleged failure to consult with the tribe on historic and cultural resources is material and within the scope of a materials license proceeding; LBP-13-9, 78 NRC 37 (2013)

late-filed contentions lack good cause when they are based on a draft environmental impact statement that contains no new information relevant to the contention; LBP-13-9, 78 NRC 37 (2013)

license renewal applicant is not required to identify safety-related incidents that have occurred during the current licensing term; LBP-13-8, 78 NRC 1 (2013)

license renewal contention alleging higher cancer death rates in local counties than state average is inadmissible because it is based on unsupported speculation; LBP-13-8, 78 NRC 1 (2013)

license renewal should not include a new, broad-scoped inquiry into compliance that is separate from and parallel to ongoing compliance oversight activity; LBP-13-8, 78 NRC 1 (2013)

limited exception to NRC's general prohibition against challenges to its rules or regulations in adjudicatory proceedings is provided in 10 C.F.R. 2.335(b); CLI-13-7, 78 NRC 199 (2013)

management integrity contentions are admissible in license renewal proceedings only if they rely on specific supporting information, including references to a serious incident involving shutdown where management responsible for the incident remained in place, a purported climate of reprisals for bringing forward safety issues, and reference to at least one expert in support of the contention; LBP-13-8, 78 NRC 1 (2013)

members of the public may challenge an action taken under 10 C.F.R. 50.59 only by means of a petition under section 2.206; LBP-13-11, 78 NRC 177 (2013)

migration tenet for admitted contentions applies when information in the draft environmental impact statement is sufficiently similar to the information in the environmental report; LBP-13-9, 78 NRC 37 (2013)

motion to admit a new waste-confidence-related contention is being held in abeyance; CLI-13-7, 78 NRC 199 (2013)

new arguments may not be raised for the first time in a reply brief; LBP-13-12, 78 NRC 239 (2013)

new or amended contentions generally must meet the six admissibility factors specified in section 2.309(f)(1); LBP-13-10, 78 NRC 117 (2013)

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new or amended contentions must demonstrate good cause for post-initial-hearing petition deadline filing, based on three factors; LBP-13-10, 78 NRC 117 (2013)

new or amended contentions related to portions of the draft environmental impact statement that differ from the environmental report must be timely filed under section 2.309(c), and meet the contention admissibility standards of section 2.309(f)(1) to be admitted; LBP-13-9, 78 NRC 37 (2013)

nothing in NRC case law or regulations suggests that license renewal is an occasion for far-reaching speculation about unimplemented and uncertain plans; LBP-13-8, 78 NRC 1 (2013)

NRC Staff cannot release NEPA documents that blindly parallel the applicant's information and omissions and then be allowed to argue that applicant's omissions prevent filing of new contentions concerning the newly released NEPA document; LBP-13-9, 78 NRC 37 (2013)

only alleged facts, not evidence or expert opinion, are required to support contention admissibility; LBP-13-8, 78 NRC 1 (2013)

onsite waste storage contentions are to be held in abeyance pending further Commission order; LBP-13-8, 78 NRC 1 (2013)

petitioner may raise a SAMA-related contention in a license renewal adjudication if it satisfies the general contention admissibility criteria in section 2.309(f)(1); CLI-13-7, 78 NRC 199 (2013)

petitioner must provide references to specific sources and documents on which petitioner intends to rely to support its contention; LBP-13-8, 78 NRC 1 (2013)

plants for which a SAMA analysis was conducted for the first time under section 51.53(c)(3)(ii)(L) may face general criticism that the passage of time between original licensing and renewal has rendered their SAMA analysis out of date upon application for a subsequent renewal term; CLI-13-7, 78 NRC 199 (2013)

portions of a contention relevant to completion of the Endangered Species Act § 7 consultation process and adequacy of NRC Staff's impact analyses relevant to the three named species meet the admissibility standards; LBP-13-9, 78 NRC 37 (2013)

post-environmental report, intervenor would need to file a motion to amend an already-admitted contention or to admit a new contention if the information in NRC Staff's NEPA statement is sufficiently different from information in the ER that supported the original contention's admission; LBP-13-10, 78 NRC 117 (2013)

post-hearing petition contention (new or amended contention) also must satisfy the substantive contention admissibility standards; LBP-13-9, 78 NRC 37 (2013)

proper question is not whether there are plausible alternative choices for use in the SAMA analysis, but whether the analysis that was done is reasonable under NEPA; CLI-13-7, 78 NRC 199 (2013)

purpose of 10 C.F.R. 2.309(f)(1) is to focus litigation on concrete issues and result in a clearer and more focused record for decision; LBP-13-8, 78 NRC 1 (2013)

reach of a contention necessarily hinges upon its terms coupled with its stated bases; LBP-13-10, 78 NRC 117 (2013)

regulations are not subject to collateral attack in NRC hearings; LBP-13-9, 78 NRC 37 (2013)

rule waiver would be necessary to litigate the issue of potentially new and significant information pertaining to bird collisions in an adjudicatory proceeding; CLI-13-7, 78 NRC 199 (2013)

rules on contention admissibility are strict by design; LBP-13-8, 78 NRC 1 (2013)

safety matters generally need to be raised, relative to an admitted safety contention, in the context of the merits disposition of the already admitted safety contention or, in the case of a new issue, as a wholly new safety contention; LBP-13-10, 78 NRC 117 (2013)

safety portion of contention questioning risk analysis of the long-term storage of irradiated nuclear fuel is inadmissible in license renewal proceeding; LBP-13-8, 78 NRC 1 (2013)

to assess whether a contention is within the scope of, and material to, the proceeding, boards need to know the legal basis (safety or environmental) of the contention; LBP-13-8, 78 NRC 1 (2013)

to be admissible, late-filed contentions must not only meet standards of section 2.309(f)(1), but must also satisfy the timeliness requirements of section 2.309(c) or section 2.307; LBP-13-9, 78 NRC 37 (2013)

to challenge generic application of a rule, petitioner seeking waiver must show that there is something extraordinary about the subject matter of the proceeding such that the rule should not apply; CLI-13-7, 78 NRC 199 (2013)

to define the scope of an admitted contention properly, boards should specify which bases are admitted; LBP-13-10, 78 NRC 117 (2013)

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to litigate a SAMA-related contention in adjudicatory proceedings where the SAMA-analysis exception applies, petitioner must obtain a rule waiver as well as satisfy the contention admissibility criteria in section 2.309(f)(1); CLI-13-7, 78 NRC 199 (2013)

to litigate an issue that otherwise would be outside the scope of an adjudication, petitioner must file a petition for waiver showing that special circumstances with respect to the subject matter of the particular proceeding are such that the application of the rule or regulation (or a provision of it) would not serve the purposes for which it was adopted; CLI-13-7, 78 NRC 199 (2013)

to litigate SAMA-related issues requires demonstration of potentially significant deficiency in the SAMA analysis that credibly could render the SAMA analysis unreasonable under NEPA standards; CLI-13-7, 78 NRC 199 (2013)

where contentions are defective for any reason, licensing boards have no duty to make them acceptable under 10 C.F.R. 2.309; LBP-13-9, 78 NRC 37 (2013)

whether a contention should properly be characterized as a contention of omission or a contention of adequacy and the ramifications of such a designation with regard to contention admissibility are discussed; LBP-13-9, 78 NRC 37 (2013)

**CONTENTIONS, LATE-FILED**

after the section 2.309(b) deadline has passed for submitting an initial hearing petition with one or more accompanying contentions, petitioner/intervenor who wishes to amend an already submitted or admitted contention or gain admission of a new contention must file a motion for leave to file such a contention; LBP-13-10, 78 NRC 117 (2013)

contention that the draft environmental impact statement fails to demonstrate adequate technical sufficiency and fails to present information in a clear, concise manner to enable effective public review is inadmissible; LBP-13-9, 78 NRC 37 (2013)

degree to which new/amended contentions will be considered timely submitted is generally defined by the presiding officer as a specific period following the triggering event that makes the previously unavailable/materially different information available so as to be the basis for the new/amended contention; LBP-13-10, 78 NRC 117 (2013)

good cause for late filing exists when information on which the filing is based was not previously available and is materially different from information previously available and the filing has been submitted in a timely fashion based on the availability of the subsequent information; LBP-13-9, 78 NRC 37 (2013)

good cause in section 2.307(a) does not share the same definition that is used for good cause in section 2.309(c); LBP-13-9, 78 NRC 37 (2013)

if a party submits a proposed contention after the initial filing deadline announced in the applicable *Federal Register* notice for submitting a hearing petition, it will not be entertained absent a determination by the presiding officer that participant has demonstrated good cause; LBP-13-9, 78 NRC 37 (2013)

if the reason a motion to admit a new or amended contention was filed after the deadline does not relate to the substance of the filing itself, the standard in 10 C.F.R. 2.307 applies in determining whether the motion can be considered timely; LBP-13-9, 78 NRC 37 (2013)

intervenors and potential intervenors have a period of time to file new or amended contentions in response to a draft environmental impact statement; LBP-13-9, 78 NRC 37 (2013)

intervenors are not permitted to wait until information reappears in the draft environmental impact statement to file their contentions; LBP-13-9, 78 NRC 37 (2013)

late-filed contentions lack good cause when they are based on a draft environmental impact statement that contains no new information relevant to the contention; LBP-13-9, 78 NRC 37 (2013)

new or amended contentions generally must meet the six admissibility factors specified in section 2.309(f)(1); LBP-13-10, 78 NRC 117 (2013)

new/amended contentions must demonstrate good cause for post-initial-hearing petition deadline filing, based on three factors; LBP-13-10, 78 NRC 117 (2013)

post-hearing petition contention (new or amended contention) also must satisfy the substantive contention admissibility standards; LBP-13-9, 78 NRC 37 (2013)

time for submitting a new/amended contention motion based on information that would be newly available, materially different, and otherwise timely submitted given the information's availability can be extended if the extension request is based on good cause; LBP-13-10, 78 NRC 117 (2013)

## SUBJECT INDEX

to be admissible, late-filed contentions must not only meet standards of section 2.309(f)(1), but must also satisfy the timeliness requirements of section 2.309(c) or section 2.307; LBP-13-9, 78 NRC 37 (2013)

### CONTROL ROOM

request that technical specification for control room emergency ventilation system instrumentation be changed to require that the control building air intake radiation-high function be applicable whenever irradiated fuel is stored in the spent fuel pool is denied; DD-13-3, 78 NRC 571 (2013)

### COOLING SYSTEMS

request that technical specification for residual heat removal-high water level and RHR-low water level be revised or a new limiting condition for operation be added to require one RHR subsystem to be operable whenever the entire reactor core is offloaded into the spent fuel pool is denied; DD-13-3, 78 NRC 571 (2013)

### COOLING TOWERS

bird collisions have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term; CLI-13-7, 78 NRC 199 (2013)

### CORRECTIVE ACTION PROGRAM

because all aspects of licensee's current licensing basis will remain in effect during the period of extended operation, in the event that renewed licenses are issued, the corrective action requirements of 10 C.F.R. Part 50, Appendix B will apply; LBP-13-13, 78 NRC 246 (2013)

### COSTS

document's unavailability does not render NRC Staff's or applicant's reliance on the NUREG-1150 decontamination cost values altogether unreasonable under NEPA; LBP-13-13, 78 NRC 246 (2013)

### CROSS-EXAMINATION

state's motion for cross-examination was granted, insofar as it would have a reasonable opportunity to examine witnesses pursuant to NRC regulations; LBP-13-13, 78 NRC 246 (2013)

### CULTURAL RESOURCES

contention alleging failure to protect historic and cultural resources is admissible; LBP-13-9, 78 NRC 37 (2013)

contention challenging sufficiency of draft environmental impact statement as it pertains to protection of cultural resources falls within the migration tenet and is admissible; LBP-13-9, 78 NRC 37 (2013)

issue of the alleged failure to consult with a tribe on historic and cultural resources is material and within the scope of a materials license proceeding; LBP-13-9, 78 NRC 37 (2013)

### CUMULATIVE IMPACTS ANALYSIS

agencies may not undertake a piecemeal review of environmental impacts; LBP-13-9, 78 NRC 37 (2013)  
contention that the draft environmental impact statement fails to adequately analyze cumulative impacts is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that the draft environmental impact statement fails to adequately assess cumulative impacts of the proposed action and another proposed ISL uranium mining operation is inadmissible; LBP-13-10, 78 NRC 117 (2013)

contention that the draft supplemental environmental impact statement fails to consider connected actions is admissible; LBP-13-9, 78 NRC 37 (2013)

cumulative actions are those that, when viewed with other proposed actions, have cumulatively significant impacts so that they should be discussed in the same environmental impact statement; LBP-13-10, 78 NRC 117 (2013)

cumulative impact is defined; LBP-13-9, 78 NRC 37 (2013)

NEPA analysis of cumulative impacts must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment; LBP-13-9, 78 NRC 37 (2013)

three types of actions (connected, cumulative, and similar) are to be considered in looking to the scope of an EIS; LBP-13-10, 78 NRC 117 (2013)

when several proposals for actions that will have cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together; LBP-13-10, 78 NRC 117 (2013)

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### CURRENT LICENSING BASIS

although the current licensing basis is not evaluated in the license renewal process, its provisions and protections remain in effect, complementing and supplementing any additional measures added due to aging management requirements; LBP-13-13, 78 NRC 246 (2013)

applicant's commitments through incorporation of applicant's updated final safety analysis report supplement are included; LBP-13-13, 78 NRC 246 (2013)

because all aspects of licensee's CLB will remain in effect during the period of extended operation, in the event that renewed licenses are issued, the corrective action requirements of 10 C.F.R. Part 50, Appendix B will apply; LBP-13-13, 78 NRC 246 (2013)

CLB includes NRC regulations contained in 10 C.F.R. Part 50 and appendices thereto; LBP-13-8, 78 NRC 1 (2013)

Commission requirements applicable to a specific plant that are in effect at the time of a license renewal application are encompassed in the CLB; LBP-13-13, 78 NRC 246 (2013)

commitments in the updated final safety analysis report and aging management plan are legally binding as part of the CLB throughout the period of extended operation and can only be changed through the section 50.59 process; LBP-13-13, 78 NRC 246 (2013)

compliance with the CLB is not within the scope of a license renewal proceeding; LBP-13-8, 78 NRC 1 (2013)

contentions that relate to current operations at a plant, as opposed to how it might operate during the period of extended operation, are inadmissible; LBP-13-8, 78 NRC 1 (2013)

for active structures, systems, and components, NRC chose to exempt from license renewal, challenges to a plant's operational activities covered by its CLB; LBP-13-13, 78 NRC 246 (2013)

if compliance with the CLB cannot be fully achieved during the current licensing term and must be consummated during the period of extended operation, then a contention raising issues about such CLB compliance is within the scope of license renewal; LBP-13-8, 78 NRC 1 (2013)

in establishing its license renewal process, NRC did not believe it necessary or appropriate to throw open the full gamut of provisions in a plant's CLB to reanalysis because those are effectively addressed and maintained by ongoing agency oversight, review, and enforcement; LBP-13-13, 78 NRC 246 (2013)

integrated plant assessment must demonstrate that effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

license requirements, including license conditions and technical specifications, plant-specific design basis information, and any orders, exemptions, and licensee commitments that are part of the docket for the plant's license make up the CLB; LBP-13-13, 78 NRC 246 (2013)

NRC has the ongoing responsibility to oversee the safety and security of operating nuclear reactors and maintains an aggressive and ongoing program to oversee plant operation and to maintain compliance with the current licensing basis; LBP-13-8, 78 NRC 1 (2013)

updated final safety analysis report supplement represents the capturing of critical aspects of the program into applicant's CLB; LBP-13-13, 78 NRC 246 (2013)

### DEADLINES

earliest that a license renewal application may be submitted is 20 years before the expiration date of the operating license in effect; CLI-13-7, 78 NRC 199 (2013)

filings deadlines may be extended or shortened by either the Commission or the presiding officer for good cause, or by stipulation approved by the Commission or the presiding officer; LBP-13-9, 78 NRC 37 (2013)

intervenors and potential intervenors have a period of time to file new or amended contentions in response to a draft environmental impact statement; LBP-13-9, 78 NRC 37 (2013)

subject to exceptions, the presiding officer must adhere to the schedule set forth in 10 C.F.R. Part 2, Appendix D; CLI-13-8, 78 NRC 219 (2013)

time for submitting a new/amended contention motion based on information that would be newly available, materially different, and otherwise timely submitted given the information's availability can be extended if the extension request is based on good cause; LBP-13-10, 78 NRC 117 (2013)

to be admissible, late-filed contentions must also satisfy the timeliness requirements of section 2.309(c) or section 2.307; LBP-13-9, 78 NRC 37 (2013)

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### DECISION ON THE MERITS

because the Commission's vacatur order does not address the merits, it need not address an argument that NRC Staff impermissibly raises objections to the merits of the board's decision without filing a petition for review; CLI-13-9, 78 NRC 551 (2013)

Commission decision to vacate an unreviewed board decision does not intimate any opinion on the soundness of the board's decision; CLI-13-9, 78 NRC 551 (2013); CLI-13-10, 78 NRC 563 (2013) dismissal of an appeal with prejudice, similar to termination of a proceeding with prejudice, generally implies that the Commission has ruled on the merits of the appeal and such ruling is reserved for unusual situations involving substantial prejudice to an opposing party or to the public interest in general; CLI-13-10, 78 NRC 563 (2013)

### DECISIONS

See Decision on the Merits; Initial Decisions; Licensing Board Decisions; Record of Decision

### DECOMMISSIONING

ALARA analysis required under section 20.1403(a) calls for a licensee seeking to use restricted release to analyze whether it would be cost-beneficial to remove enough radioactive contamination from the site that doses to the public are no higher than 25 mrem per year without reliance on restricted-release controls; CLI-13-6, 78 NRC 155 (2013)

board provides textual analysis and additional clarifying explanation of its interpretation of 10 C.F.R. 20.1403(a); CLI-13-6, 78 NRC 155 (2013)

claim that alternate concentration limit could not be accurately generated until the post-operational decommissioning process did not account for the possible creation of a bounding analysis based on the historical experience at other ISR sites; LBP-13-10, 78 NRC 117 (2013)

contention that the DEIS fails to analyze the environmental impacts that will occur if applicant cannot restore groundwater to primary or secondary limits is admissible; LBP-13-10, 78 NRC 117 (2013) despite having passed the initial eligibility test for restricted release, if licensee cannot satisfy dose criteria, its site will not be considered acceptable for license termination under restricted conditions; CLI-13-6, 78 NRC 155 (2013)

determination expressly required by the text "further reductions in residual radioactivity . . . were not being made because the residual levels associated with restricted conditions are ALARA" in 10 C.F.R. 20.1403 is an inquiry that focuses on how far it is possible, on a cost-effective basis, to further reduce the "residual levels"; CLI-13-6, 78 NRC 155 (2013)

doses yielded by restricted-release and unrestricted-release decommissioning options are not susceptible to being compared meaningfully because of the significantly different risks and uncertainties associated with each option; CLI-13-6, 78 NRC 155 (2013)

eligibility test in section 20.1403(a) postulates a cost-benefit inquiry that is modeled on a traditional ALARA cost-benefit analysis, but that serves a different regulatory purpose; CLI-13-6, 78 NRC 155 (2013)

for license termination under restricted conditions, licensee must provide legally enforceable institutional controls that provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 25 mrem (0.25 mSv) per year; CLI-13-6, 78 NRC 155 (2013)

"further reductions" in 10 C.F.R. 20.1403(a) necessarily refers to further reductions from the level of residual radioactivity that a licensee proposes to leave in place under its proposed restricted-release decommissioning plan; CLI-13-6, 78 NRC 155 (2013)

if licensee demonstrates, through either of the two cost-benefit approaches, that removing radioactive contamination to the unrestricted-use level would not be cost-beneficial, then licensee must show that, with the addition of engineered barriers and institutional controls, the average annual dose to the public will not exceed 25 mrem per year *and* is as low as is reasonably achievable; CLI-13-6, 78 NRC 155 (2013)

licensee must show that, if institutional controls fail, enough residual radioactivity has been removed from the site so that the average annual dose to the public will not exceed 100 mrem per year and is as low as is reasonably achievable; CLI-13-6, 78 NRC 155 (2013)

licensees, in determining whether levels are ALARA, are to consider detriments, such as traffic accidents; CLI-13-6, 78 NRC 155 (2013)

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nothing in NRC license termination regulations, including the ALARA principle incorporated into section 20.1403(a), calls for a comparison of doses of the restricted-release and unrestricted-release decommissioning options; CLI-13-6, 78 NRC 155 (2013)

NRC prefers that licensees satisfy radiation dose criteria for license termination through unrestricted-release decommissioning if it is cost-beneficial to do so; CLI-13-6, 78 NRC 155 (2013) one of the benefits of removing enough radioactivity to cross the 25-mrem threshold is that the value of the affected property is likely to increase, and it is in this sense that NRC guidelines contemplate, as part of the ALARA analysis, a comparison between restricted release and unrestricted release; CLI-13-6, 78 NRC 155 (2013)

"reductions in residual radioactivity" refers only to dose reductions to the public that can be accomplished solely through the steps associated with unrestricted-release decommissioning, i.e., removal of contaminated material or decontamination; CLI-13-6, 78 NRC 155 (2013)

"residual levels," as used in the phrase "were not being made because the residual levels . . . are ALARA," in 10 C.F.R. 20.1403(a) refers back to, and is shorthand for, the term "residual radioactivity" used earlier in the introductory language; CLI-13-6, 78 NRC 155 (2013)

sites will be considered acceptable for license termination under restricted conditions if licensee can demonstrate that further reductions in residual radioactivity necessary to comply with the provisions of section 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA; CLI-13-6, 78 NRC 155 (2013)

sites will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a Total Effective Dose Equivalent to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater sources of drinking water, and that the residual radioactivity has been reduced to levels that are as low as reasonably achievable; CLI-13-6, 78 NRC 155 (2013)

the words "further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402" are analyzed; CLI-13-6, 78 NRC 155 (2013)

threshold eligibility for restricted release requires that licensees demonstrate that remediation to the level of adequate protection for license termination cannot be achieved cost-beneficially through unrestricted release before allowing them to pursue restricted-release decommissioning; CLI-13-6, 78 NRC 155 (2013)

to provide adequate protection to the public upon license termination, NRC has established a maximum dose level to the public of 25 mrem per year, which licensee must satisfy without regard to cost, and regardless of whether decommissioning is to be accomplished through restricted or unrestricted release; CLI-13-6, 78 NRC 155 (2013)

### DECONTAMINATION

contention that severe accident mitigation alternatives analysis does not accurately reflect decontamination and cleanup costs is decided; LBP-13-13, 78 NRC 246 (2013)

document's unavailability does not render NRC Staff's or applicant's reliance on the NUREG-1150 decontamination cost values altogether unreasonable under NEPA; LBP-13-13, 78 NRC 246 (2013)

### DEFINITIONS

contention of omission is one that alleges an application suffers from an improper omission, whereas contention of adequacy raises a specific substantive challenge to how particular information or issues have been discussed in the application; LBP-13-9, 78 NRC 37 (2013)

cumulative actions are those that, when viewed with other proposed actions, have cumulatively significant impacts so that they should be discussed in the same environmental impact statement; LBP-13-10, 78 NRC 117 (2013)

cumulative impact is defined; LBP-13-9, 78 NRC 37 (2013)

current licensing basis consists of license requirements, including license conditions and technical specifications, plant-specific design basis information, and any orders, exemptions, and licensee commitments that are part of the docket for the plant's license; LBP-13-13, 78 NRC 246 (2013)

current licensing basis encompasses the various Commission requirements applicable to a specific plant that are in effect at the time of the license renewal application; LBP-13-13, 78 NRC 246 (2013)

"current licensing basis" is defined in 10 C.F.R. 54.3(a); LBP-13-8, 78 NRC 1 (2013)

environmentally qualified cable is defined in 10 C.F.R. 50.49; LBP-13-13, 78 NRC 246 (2013)

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nuclear reactor is an apparatus, other than an atomic weapon, designed or used to sustain nuclear fission in a self-supporting chain reaction; DD-13-3, 78 NRC 571 (2013)  
severe accident mitigation alternatives analysis is a quantitative cost-benefit analysis, comparing the costs of implementing a mitigation measure against the value of its benefit; LBP-13-13, 78 NRC 246 (2013)  
“residual radioactivity” is defined as radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee’s control; CLI-13-6, 78 NRC 155 (2013)  
similar actions are those that, when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental impacts together, such as common timing or geography, so that the agency may wish to analyze them together; LBP-13-10, 78 NRC 117 (2013)  
“small” is defined in NRC regulations as environmental impacts that are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource; LBP-13-13, 78 NRC 246 (2013)  
“small,” “moderate,” and “large” environmental impacts are defined in 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1, n.3; LBP-13-8, 78 NRC 1 (2013)  
structures, systems, and components are passive if they perform their intended function without moving parts or without a change in configuration or properties and the effects of aging degradation for these components are not readily monitorable; LBP-13-13, 78 NRC 246 (2013)

### DESIGN

features to be included in the technical specifications are those features of the facility such as materials of construction and geometric arrangements, which, if altered or modified, would have a significant effect on safety and are not covered by other TSs; DD-13-3, 78 NRC 571 (2013)

See also Containment Design

### DESIGN BASIS

construction permit applications must include the principal design criteria for a proposed facility and describe the design bases and their relationship to the principal design criteria in the preliminary safety analysis report; DD-13-3, 78 NRC 571 (2013)

### DESIGN BASIS ACCIDENT

nuclear power reactors must have emergency plans in place to respond to accidents despite the fact that Table B-1 within 10 C.F.R. Part 51 concludes that the environmental impacts of both design basis and severe accidents at a nuclear reactor are small for all plants; LBP-13-13, 78 NRC 246 (2013)

### DISCLOSURE

proposed questions filed by all parties will be publicly released by order of the board 30 days after its decision; LBP-13-13, 78 NRC 246 (2013)

### DISCOVERY

until the safety evaluation report and all necessary environmental impact statements are completed, discovery cannot be completed nor can the evidentiary hearing be held; CLI-13-8, 78 NRC 219 (2013)

### DISMISSAL OF PROCEEDING

dismissal of an appeal with prejudice, similar to termination of a proceeding with prejudice, generally implies that the Commission has ruled on the merits of the appeal and such ruling is reserved for unusual situations involving substantial prejudice to an opposing party or to the public interest in general; CLI-13-10, 78 NRC 563 (2013)

if an application is withdrawn prior to issuance of a notice of hearing, the Commission shall dismiss the proceeding; CLI-13-10, 78 NRC 563 (2013)

opposing party’s litigation expenses do not provide a basis for departing from the usual rule that a dismissal should be without prejudice; CLI-13-10, 78 NRC 563 (2013)

possibility that an issue may arise in the future is not grounds to continue with an appeal in a proceeding where no live controversy remains between the litigants; CLI-13-10, 78 NRC 563 (2013)

### DOCUMENTARY MATERIAL

all the information that applicant uses to support its license renewal application has to be maintained in an auditable and retrievable form; LBP-13-13, 78 NRC 246 (2013)

### DOCUMENTATION

license renewal applicant must present an aging management plan with sufficient information that NRC will be able to draw its own independent conclusion as to whether the applicant’s programs are in fact consistent with the GALL Report; LBP-13-13, 78 NRC 246 (2013)

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license renewal applicant must provide a general description of the corporate-wide and plant-specific procedures sufficient to show that the ten elemental attributes of GALL have been addressed so as to demonstrate that the effects of aging on buried pipes will be adequately managed throughout the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

### DOSE LIMITS

ALARA analysis required under section 20.1403(a) calls for a licensee seeking to use restricted release to analyze whether it would be cost-beneficial to remove enough radioactive contamination from the site that doses to the public are no higher than 25 mrem per year without reliance on restricted-release controls; CLI-13-6, 78 NRC 155 (2013)

board provides textual analysis and additional clarifying explanation of its interpretation of 10 C.F.R. 20.1403(a); CLI-13-6, 78 NRC 155 (2013)

doses yielded by the restricted-release and unrestricted-release decommissioning options are not susceptible to being compared meaningfully because of the significantly different risks and uncertainties associated with each option; CLI-13-6, 78 NRC 155 (2013)

for license termination under restricted conditions, licensee must provide legally enforceable institutional controls that provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 25 mrem (0.25 mSv) per year; CLI-13-6, 78 NRC 155 (2013)

if licensee demonstrates, through either of the two cost-benefit approaches, that removing radioactive contamination to the unrestricted-use level would not be cost-beneficial, then licensee then must show that, with the addition of engineered barriers and institutional controls, the average annual dose to the public will not exceed 25 mrem per year and is as low as is reasonably achievable; CLI-13-6, 78 NRC 155 (2013)

licensee must show that, if institutional controls fail, enough residual radioactivity has been removed from the site so that the average annual dose to the public will not exceed 100 mrem per year and is as low as is reasonably achievable; CLI-13-6, 78 NRC 155 (2013)

nothing in NRC license termination regulations, including the ALARA principle incorporated into section 20.1403(a), calls for a comparison of doses of the restricted-release and unrestricted-release decommissioning options; CLI-13-6, 78 NRC 155 (2013)

sites will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a Total Effective Dose Equivalent to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater sources of drinking water, and that the residual radioactivity has been reduced to levels that are as low as reasonably achievable; CLI-13-6, 78 NRC 155 (2013)

the words "further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402" are analyzed; CLI-13-6, 78 NRC 155 (2013)

to provide adequate protection to the public upon license termination, NRC has established a maximum dose level to the public of 25 mrem per year, which licensee must satisfy without regard to cost, and regardless of whether decommissioning is to be accomplished through restricted or unrestricted release; CLI-13-6, 78 NRC 155 (2013)

See also Total Effective Dose Equivalent

### DRAFT ENVIRONMENTAL IMPACT STATEMENT

boards must reject intervenors' arguments that fail to specifically address the DEIS; LBP-13-9, 78 NRC 37 (2013)

claim that the DEIS does not adequately assess the impacts to threatened and endangered species is rejected; LBP-13-9, 78 NRC 37 (2013)

contention challenging sufficiency of the DEIS as it pertains to the protection of cultural resources falls within the migration tenet and is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that DEIS fails to adequately analyze cumulative impacts is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that DEIS fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that DEIS fails to adequately assess cumulative impacts of the proposed action and another proposed ISL uranium mining operation is inadmissible; LBP-13-10, 78 NRC 117 (2013)

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contention that DEIS fails to adequately describe or analyze proposed mitigation measures is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that DEIS fails to analyze the environmental impacts that will occur if applicant cannot restore groundwater to primary or secondary limits is admissible; LBP-13-10, 78 NRC 117 (2013)

contention that DEIS fails to comply with NEPA with regard to impacts on wildlife, and fails to comply with the Endangered Species Act and Migratory Bird Treaty Act is admissible in part; LBP-13-9, 78 NRC 37 (2013)

contention that DEIS fails to consider all reasonable alternatives is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that DEIS fails to demonstrate adequate technical sufficiency and fails to present information in a clear, concise manner to enable effective public review is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that DEIS fails to include a reviewable plan for disposal of 11e(2) byproduct material is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that DEIS fails to include adequate hydrological information to demonstrate applicant's ability to contain groundwater fluid migration is admissible; LBP-13-10, 78 NRC 117 (2013)

contention that DEIS fails to include an adequate hydrogeological analysis to assess adequate confinement and potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that DEIS fails to include necessary information for adequate determination of baseline groundwater quality is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that DEIS fails to take a hard look at impacts of the proposed mine related to air emissions and liquid waste disposal is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that NRC has failed to properly define the scope of the proposed major federal action and instead improperly segments the project is inadmissible; LBP-13-10, 78 NRC 117 (2013)

DEISs need not contain more information on mitigation measures than a description of the mitigation measures on which the NRC relies and the explanation of the limiting effect of the mitigation measures on environmental impacts; LBP-13-9, 78 NRC 37 (2013)

final EIS will include responses to any comments on the draft EIS; LBP-13-13, 78 NRC 246 (2013)

future actions on which the DEIS purports to rely in its analysis of impacts constitute a license condition, the use of which is permitted in NEPA documents; LBP-13-9, 78 NRC 37 (2013)

intervenor attempting to litigate an issue based on expressed concerns about the DEIS may need to amend the admitted contention or submit a new contention if information in the DEIS is sufficiently different from information in the environmental report that supported the original contention's admission; LBP-13-9, 78 NRC 37 (2013)

intervenors and potential intervenors have a period of time to file new or amended contentions in response to a DEIS; LBP-13-9, 78 NRC 37 (2013)

intervenors are not permitted to wait until information reappears in the DEIS to file their contentions; LBP-13-9, 78 NRC 37 (2013)

late-filed contentions lack good cause when they are based on a DEIS that contains no new information relevant to the contention; LBP-13-9, 78 NRC 37 (2013)

new or amended contentions related to portions of the DEIS that differ from the environmental report must be timely filed under section 2.309(c), and meet the contention admissibility standards of section 2.309(f)(1) to be admitted; LBP-13-9, 78 NRC 37 (2013)

NRC Staff cannot release NEPA documents that blindly parallel the applicant's information and omissions and then be allowed to argue that applicant's omissions prevent filing of new contentions concerning the newly released NEPA document; LBP-13-9, 78 NRC 37 (2013)

NRC Staff is not obligated to fully adopt, or agree with, all comments to the DEIS regarding the no-action alternative; LBP-13-13, 78 NRC 246 (2013)

NRC will consider all comments on the draft supplemental EIS regardless of whether the comment is directed to impacts in Category 1 or 2; CLI-13-7, 78 NRC 199 (2013)

petitioner may submit to NRC Staff any information that it believes to be new and significant by participating in NRC's parallel NEPA process wherein an opportunity for public comment on the draft supplemental EIS is provided; CLI-13-7, 78 NRC 199 (2013)

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policies set forth by NEPA prevent NRC Staff from segmenting the disposal issues from the inquiry into whether applicant will be allowed to create 11e(2) byproduct material in the first instance; LBP-13-9, 78 NRC 37 (2013)

recirculation of the DEIS is required only when the information presents a seriously different picture of the environmental impacts; LBP-13-9, 78 NRC 37 (2013)

when an agency's conclusions are different from the Fish and Wildlife Service's regarding endangered species, the agency must clearly articulate its reasons for disagreement; LBP-13-9, 78 NRC 37 (2013)

**ECONOMIC EFFECTS**

supplemental environmental impact statements for license renewal are not required to include discussion of need for power or the economic costs and economic benefits of the proposed action or of alternatives to the proposed action; LBP-13-13, 78 NRC 246 (2013)

**ECONOMIC INJURY**

opposing party's litigation expenses do not provide a basis for departing from the usual rule that a dismissal should be without prejudice; CLI-13-10, 78 NRC 563 (2013)

**ELECTRICAL EQUIPMENT**

board reviews whether transformers are subject to replacement based on a qualified life or specified time period; LBP-13-13, 78 NRC 246 (2013)

request for enforcement action to address concerns about operability of the submerged and/or wetted non-environmentally qualified inaccessible cables is denied; DD-13-2, 78 NRC 185 (2013)

safety contention challenging aging management of electrical transformers is decided; LBP-13-13, 78 NRC 246 (2013)

transformers perform their intended function through a change in state similar to switchgear, power supplies, battery chargers, and power inverters, which have been excluded by from an aging management review; LBP-13-13, 78 NRC 246 (2013)

**ELECTRONIC FILING**

electronic filing is required, unless the presiding officer grants an exemption permitting an alternative filing method for good cause shown, or unless the filing falls within the scope of an exception; CLI-13-9, 78 NRC 551 (2013)

**EMERGENCY PLANS**

nuclear power reactors must have emergency plans in place to respond to accidents despite the fact that Table B-1 within 10 C.F.R. Part 51 concludes that the environmental impacts of both design basis and severe accidents at a nuclear reactor are small for all plants; LBP-13-13, 78 NRC 246 (2013)

**ENDANGERED SPECIES**

agencies are required to confer with the Fish and Wildlife Service on any action that is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat; LBP-13-9, 78 NRC 37 (2013)

claim that the draft environmental impact statement does not adequately assess the impacts to threatened and endangered species is rejected; LBP-13-9, 78 NRC 37 (2013)

when an agency's conclusions are different from the Fish and Wildlife Service's regarding endangered species, the agency must clearly articulate its reasons for disagreement; LBP-13-9, 78 NRC 37 (2013)

**ENDANGERED SPECIES ACT**

contention that draft environmental impact statement fails to comply with NEPA with regard to impacts on wildlife, and fails to comply with the ESA and Migratory Bird Treaty Act is admissible in part; LBP-13-9, 78 NRC 37 (2013)

if NRC engages in an informal consultation with the Fish and Wildlife Service and it is determined that the project will not adversely affect listed species or critical habitat, it need not engage in formal consultation; LBP-13-9, 78 NRC 37 (2013)

portions of a contention relevant to the completion of the Endangered Species Act § 7 consultation process and the adequacy of the NRC Staff's impact analyses relevant to the three named species meet the admissibility standards; LBP-13-9, 78 NRC 37 (2013)

section 7 applies only where threatened and endangered species or critical habitats are present and impacts on a species are expected as a result of the proposed project; LBP-13-9, 78 NRC 37 (2013)

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### ENERGY EFFICIENCY

analysis and response to state's extensive comments to the draft supplemental environmental impact statement regarding state-specific energy conservation and efficiency as a replacement alternative fulfills NRC Staff's obligation to take a hard look at alternatives; LBP-13-13, 78 NRC 246 (2013)

### ENFORCEMENT ACTIONS

request for enforcement action to modify operating licenses or require licensee to submit amendment requests to revise technical specifications for spent fuel pool instrumentation is denied; DD-13-3, 78 NRC 571 (2013)

### ENVIRONMENTAL ANALYSIS

only if the harm in question is so remote and speculative as to reduce the effective probability of its occurrence to zero may the agency dispense with the consequences portion of its EA; LBP-13-13, 78 NRC 246 (2013)

### ENVIRONMENTAL ASSESSMENT

alternatively to preparing an environmental impact statement, NRC can conduct an environmental assessment and make a finding of no significant impact; LBP-13-13, 78 NRC 246 (2013)

### ENVIRONMENTAL EFFECTS

NEPA does not call for certainty or precision, but an estimate of anticipated (not unduly speculative) impacts; LBP-13-13, 78 NRC 246 (2013)

nuclear power reactors must have emergency plans in place to respond to accidents despite the fact that Table B-1 within 10 C.F.R. Part 51 concludes that the environmental impacts of both design basis and severe accidents at a nuclear reactor are small for all plants; LBP-13-13, 78 NRC 246 (2013)  
offsite land use is a Category 2 impact because land use changes may be perceived by some community members as adverse and by others as beneficial, and so, NRC Staff is unable to assess generically the potential significance of site-specific offsite land use impacts; LBP-13-13, 78 NRC 246 (2013)

"small" is defined in NRC regulations as environmental impacts that are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource; LBP-13-13, 78 NRC 246 (2013)

"small," "moderate," and "large" environmental impacts are defined; LBP-13-8, 78 NRC 1 (2013)

### ENVIRONMENTAL IMPACT STATEMENT

agencies are required to create an EIS, and the moment at which an agency must have a final statement ready is the time at which it makes a recommendation or report on a proposal for federal action; LBP-13-10, 78 NRC 117 (2013)

agencies are to use the parameters laid out in 40 C.F.R. 1508.25 when defining the scope of the EIS; LBP-13-10, 78 NRC 117 (2013)

agencies may not undertake a piecemeal review of environmental impacts; LBP-13-9, 78 NRC 37 (2013)  
agencies must consider the impact of other proposed projects only if the projects are so interdependent that it would be unwise or irrational to complete one without the other; LBP-13-10, 78 NRC 117 (2013)

agencies must make sure that the proposal that is the subject of an EIS is properly defined; LBP-13-10, 78 NRC 117 (2013)

alternatively to preparing an environmental impact statement, NRC can conduct an environmental assessment and make a finding of no significant impact; LBP-13-13, 78 NRC 246 (2013)

although contention contesting applicant's environmental report generally may be viewed as a challenge to NRC Staff's subsequent draft environmental impact statement, new claims must be raised in a new or amended contention; LBP-13-10, 78 NRC 117 (2013)

as to whether the connected action aspect of 40 C.F.R. 1508.25(a)(1) supports an improper-segmentation contention's admissibility, petitioners have not provided sufficient supporting information to show that a genuine dispute exists on the material issue; LBP-13-10, 78 NRC 117 (2013)

contention that it is premature to relicense nuclear facilities with existing permits that will not expire for 11 to 14 years because relicensing more than 10 years in advance of the expiration of the existing licenses will result in environmental impact statements that will be stale by the time the existing licenses expire is inadmissible; LBP-13-12, 78 NRC 239 (2013)

cumulative actions are those that, when viewed with other proposed actions, have cumulatively significant impacts so that they should be discussed in the same EIS; LBP-13-10, 78 NRC 117 (2013)

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despite the ability of both NRC Staff and applicant to present evidence and witnesses on environmental issues, the ultimate issue in determining NEPA compliance is the adequacy of NRC Staff's environmental review, not the applicant's environmental report; LBP-13-13, 78 NRC 246 (2013) discovery cannot be completed nor can the evidentiary hearing be held until the safety evaluation report and all necessary environmental impact statements are completed; CLI-13-8, 78 NRC 219 (2013) EISs are not intended to be research documents, reflecting the frontiers of scientific methodology, studies and data; LBP-13-13, 78 NRC 246 (2013)

EISs serve as an environmental full disclosure law providing agency decisionmakers, as well as the President, the Congress, the Council on Environmental Quality, and the public the environmental cost-benefit information that Congress thought they should have about each qualifying federal action; LBP-13-13, 78 NRC 246 (2013)

EISs should be issued to include other related actions only when those related actions have been formally proposed and are pending before the relevant agency; LBP-13-10, 78 NRC 117 (2013)

federal agencies are required, to the fullest extent possible, to include in every recommendation or report on proposals for major federal actions significantly affecting the quality of the human environment a detailed statement on the environmental impact of the proposed action; LBP-13-13, 78 NRC 246 (2013)

NEPA analysis of cumulative impacts must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment; LBP-13-9, 78 NRC 37 (2013)

NEPA does not require a worst-case analysis; LBP-13-13, 78 NRC 246 (2013)

NEPA does not require an agency to consider the possible environmental impacts of less imminent actions when preparing the impact statement on proposed actions; LBP-13-10, 78 NRC 117 (2013)

NEPA-related contentions initially are based on applicant's environmental report which will inform NRC Staff's NEPA review; LBP-13-10, 78 NRC 117 (2013)

NEPA's hard-look requirement does not allow sweeping generalities about possible effects and risk without a justification as to why more definitive information was not provided; LBP-13-13, 78 NRC 246 (2013)

NEPA's requirements, like publication of the EIS, implement NEPA's sweeping policy goals by ensuring that agencies will take a hard look at environmental consequences; LBP-13-13, 78 NRC 246 (2013)

NRC adjudicatory hearings are not EIS editing sessions wherein the board sits to parse and fine-tune EISs; LBP-13-13, 78 NRC 246 (2013)

NRC has the right to prepare an independent EIS whenever NRC has regulatory authority over an activity; LBP-13-9, 78 NRC 37 (2013)

NRC is directed to adopt the Department of Energy EIS for the high-level waste repository to the extent practicable; CLI-13-8, 78 NRC 219 (2013)

NRC is required to prepare a detailed statement discussing the environmental impacts, alternatives, and mitigation measures for any major federal action significantly affecting the quality of the human environment; CLI-13-7, 78 NRC 199 (2013)

NRC is required under NEPA to consider new and significant information in its environmental analyses; CLI-13-7, 78 NRC 199 (2013)

NRC need only address reasonably foreseeable impacts, not those that are remote and speculative or inconsequentially small; LBP-13-13, 78 NRC 246 (2013)

permissive "may" language of 40 C.F.R. 1508.25(a)(3) affords an agency more discretion in making a choice about whether a single EIS is the best way to assess similar actions; LBP-13-10, 78 NRC 117 (2013)

post-environmental report, intervenor would need to file a motion to amend an already-admitted contention or to admit a new contention if information in NRC Staff's NEPA statement is sufficiently different from information in the ER that supported the original contention's admission; LBP-13-10, 78 NRC 117 (2013)

presiding officer in the adjudication will determine the extent to which adoption by the NRC of DOE's repository EIS and its supplements is practicable, which in turn will satisfy NRC's NEPA obligations; CLI-13-8, 78 NRC 219 (2013)

proposals or parts of proposals that are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single EIS; LBP-13-10, 78 NRC 117 (2013)

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similar actions are those that, when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental impacts together, such as common timing or geography, so that the agency may wish to analyze them together; LBP-13-10, 78 NRC 117 (2013)

three types of actions (connected, cumulative, and similar) are to be considered in looking to the scope of an EIS; LBP-13-10, 78 NRC 117 (2013)

to be successful, intervenors must demonstrate with adequate support that NRC Staff failed to take a hard look at important environmental questions or failed to provide a reasonable analysis; LBP-13-13, 78 NRC 246 (2013)

to bring NEPA into play, a possible future action must at least constitute a proposal pending before the agency (i.e., ripeness), and must be in some way interrelated with the action that the agency is actively considering (i.e., nexus); LBP-13-10, 78 NRC 117 (2013)

to determine whether actions are connected such that they should be discussed in the same EIS, an agency is to consider whether the actions automatically trigger other actions that may require an EIS, cannot or will not proceed unless other actions are taken previously or simultaneously, or are interdependent parts of a larger action and depend on the larger action for their justification; LBP-13-10, 78 NRC 117 (2013)

to determine whether interdependence exists among the various actions at issue, courts generally have looked to see whether the first action has independent utility; LBP-13-10, 78 NRC 117 (2013)

under NEPA, an agency need not discuss alternatives that are infeasible, ineffective, or inconsistent with the basic policy objectives for the management of the area; LBP-13-9, 78 NRC 37 (2013)

when several proposals for actions that will have cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together; LBP-13-10, 78 NRC 117 (2013)

when taking the requisite hard look at environmental consequences of the alternatives to the proposed licensing action, the EIS must discuss the no-action alternative; LBP-13-13, 78 NRC 246 (2013)

See also Draft Environmental Impact Statement; Final Environmental Impact Statement; Generic Environmental Impact Statement; Supplemental Environmental Impact Statement

**ENVIRONMENTAL ISSUES**

admitted contentions challenging applicant's environmental report may, in appropriate circumstances, function as challenges to similar portions of NRC Staff's environmental impact statement; LBP-13-9, 78 NRC 37 (2013)

although applicant carries the burden of proof on safety issues, NRC Staff has the overall burden of complying with NEPA; LBP-13-13, 78 NRC 246 (2013)

boards may construe an admitted contention contesting the environmental report as a challenge to a subsequently issued draft or final environmental impact statement without the need for intervenors to file a new or amended contention; LBP-13-9, 78 NRC 37 (2013)

despite the ability of both NRC Staff and applicant to present evidence and witnesses on environmental issues, the ultimate issue in determining NEPA compliance is the adequacy of NRC Staff's environmental review, not applicant's environmental report; LBP-13-13, 78 NRC 246 (2013)

hearings on environmental issues addressed in the environmental impact statement may not commence before issuance of the final EIS; LBP-13-13, 78 NRC 246 (2013)

migration tenet for admitted contentions applies when information in the draft environmental impact statement is sufficiently similar to the information in the environmental report; LBP-13-9, 78 NRC 37 (2013)

NEPA-related contentions initially are based on applicant's environmental report which will inform NRC Staff's NEPA review; LBP-13-10, 78 NRC 117 (2013)

to assess whether a contention is within the scope of, and material to, the proceeding, boards need to know the legal basis (safety or environmental) of the contention; LBP-13-8, 78 NRC 1 (2013)

**ENVIRONMENTAL JUSTICE**

NRC will make an effort under NEPA to become aware of the demographic and economic circumstances of local communities; LBP-13-13, 78 NRC 246 (2013)

NRC's goal is to identify and adequately weigh, or mitigate, effects on low-income and minority communities that become apparent only by considering factors peculiar to those communities; LBP-13-13, 78 NRC 246 (2013)

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### ENVIRONMENTAL QUALIFICATION OF ELECTRICAL EQUIPMENT

cables important to safety must be designed to meet their intended function for the environment that they are subjected to and if cables have been exposed to conditions for which they are not designed, licensees must demonstrate, through testing or monitoring, reasonable assurance that the cables can perform their intended design function for the licensed operating term; DD-13-2, 78 NRC 185 (2013) cables subject to the environmental qualification standards of 10 C.F.R. 50.49 are important to the safety of a nuclear power plant and are required to function during an accident when exposed to harsh environmental conditions; LBP-13-13, 78 NRC 246 (2013)

licensees must ensure that electrical cables are designed to function in environmental conditions during normal operation and during accidents; DD-13-2, 78 NRC 185 (2013)

request for enforcement action to address concerns about operability of the submerged and/or wetted non-environmentally qualified inaccessible cables is denied; DD-13-2, 78 NRC 185 (2013)

### ENVIRONMENTAL REPORT

applicant is exempt from including in its environmental report a site-specific severe accident mitigation alternatives analysis because NRC Staff previously considered severe accident mitigation design alternatives in its final environmental impact statement; CLI-13-7, 78 NRC 199 (2013)

applicant must include a discussion of severe accident mitigation alternatives if NRC has not considered them previously for the applicant's plant; CLI-13-7, 78 NRC 199 (2013)

because it is a Category 1 issue, license renewal applicants need not address bird collisions in their environmental reports unless they are aware of relevant new and significant information; CLI-13-7, 78 NRC 199 (2013)

contention that applicant fails to include need-for-power analyses in its ERs for operating license renewal is inadmissible; LBP-13-12, 78 NRC 239 (2013)

contention that challenges lack of severe accident mitigation alternatives analysis in applicant's environmental report is inadmissible; CLI-13-7, 78 NRC 199 (2013)

despite the ability of both NRC Staff and applicant to present evidence and witnesses on environmental issues, the ultimate issue in determining NEPA compliance is the adequacy of NRC Staff's environmental review, not applicant's ER; LBP-13-13, 78 NRC 246 (2013)

exception in section 51.53(c)(3)(ii)(L) operates as the functional equivalent of a Category 1 designation for Limerick and similarly situated plants for which SAMAs were already considered in an environmental impact statement or environmental assessment; CLI-13-7, 78 NRC 199 (2013)

license renewal applicants must identify in their environmental reports any new and significant information of which the applicant is aware to assist in the preparation of NRC's new-and-significant-information analysis; CLI-13-7, 78 NRC 199 (2013)

license renewal applicants whose facilities qualify for the SAMA-analysis exception are exempt from addressing severe accident mitigation in their environmental reports, just as they would be exempt from addressing Category 1 issues; CLI-13-7, 78 NRC 199 (2013)

NEPA-related contentions initially are based on applicant's environmental report which will inform NRC Staff's NEPA review; LBP-13-10, 78 NRC 117 (2013)

nonspeculative irreversible and irretrievable commitment of resources requires that an ER provide an impacts analysis of such an occurrence; LBP-13-10, 78 NRC 117 (2013)

NRC does not mandate a specific approach to SAMA analyses, but instead, reviews each severe accident mitigation consideration provided by a license renewal applicant on its merits and determines whether it constitutes a reasonable consideration of SAMAs; CLI-13-7, 78 NRC 199 (2013)

NRC Staff cannot release NEPA documents that blindly parallel the applicant's information and omissions and then be allowed to argue that applicant's omissions prevent filing of new contentions concerning the newly released NEPA document; LBP-13-9, 78 NRC 37 (2013)

on issues arising under the National Environmental Policy Act, participants shall file contentions based on applicant's ER; CLI-13-7, 78 NRC 199 (2013)

to assist NRC in preparation of a supplemental environmental impact statement, license renewal applicants are required to prepare an ER; CLI-13-7, 78 NRC 199 (2013)

to litigate a SAMA-related contention in adjudicatory proceedings where the SAMA-analysis exception applies, petitioner must obtain a rule waiver as well as satisfy the contention admissibility criteria in section 2.309(f)(1); CLI-13-7, 78 NRC 199 (2013)

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types of information that an ER must contain are described in 10 C.F.R. 51.53(c)(3)(ii); CLI-13-7, 78 NRC 199 (2013)

### ENVIRONMENTAL REVIEW

although NRC must take a hard look under NEPA, NEPA itself does not mandate particular results; LBP-13-13, 78 NRC 246 (2013)

before a final decision approving or disapproving a construction authorization application may be reached, not only must NRC Staff complete its safety and environmental reviews but a formal hearing must be conducted, and the Commission's own review of both contested and uncontested issues must take place; CLI-13-8, 78 NRC 219 (2013)

environmental justice must be addressed in individual license renewal reviews; LBP-13-13, 78 NRC 246 (2013)

establishment of baseline conditions of the affected environment is a fundamental requirement of the National Environmental Policy Act process; LBP-13-9, 78 NRC 37 (2013)

in the context of license renewal, NRC's Atomic Energy Act safety review under Part 54 does not compromise or limit the National Environmental Policy Act; LBP-13-8, 78 NRC 1 (2013); LBP-13-13, 78 NRC 246 (2013)

NRC Staff must prepare a Record of Decision to accompany any Commission decision on any action for which a final EIS has been prepared; LBP-13-13, 78 NRC 246 (2013)

NRC Staff must prepare a summary of determinations and conclusions and provide it to scoping participants; LBP-13-9, 78 NRC 37 (2013)

Part 40, Appendix A, Criteria 4(e) and 5G(2) are safety criteria that apply to applicants and licensees and are not relevant to the NEPA review; LBP-13-9, 78 NRC 37 (2013)

presiding officer must take into consideration NRC Staff's projected schedule for completion of its safety and environmental evaluations to ensure that the hearing schedule does not adversely impact Staff's ability to complete its reviews in a timely manner; LBP-13-13, 78 NRC 246 (2013)

reissuance of a reactor license is a major federal action requiring an environmental review; LBP-13-13, 78 NRC 246 (2013)

severe accident mitigation alternatives analysis is not part of the agency's safety review for license renewal under the Atomic Energy Act, but is instead a mitigation alternatives analysis conducted pursuant to the National Environmental Policy Act; LBP-13-8, 78 NRC 1 (2013)

to meet its environmental review burden in license renewal cases, NRC Staff developed the generic environmental impact statement, which contains findings that apply to all nuclear power plants and are codified in Appendix B of Subpart A of 10 C.F.R. Part 51; LBP-13-13, 78 NRC 246 (2013)

under the NEPA rule of reason, NRC's environmental analysis need only consider environmental impacts that are reasonably foreseeable, and need not consider remote and speculative scenarios; LBP-13-13, 78 NRC 246 (2013)

waiver of a rule pertaining to the agency's environmental responsibilities is possible; CLI-13-7, 78 NRC 199 (2013)

### ERROR

licensing board erred in concluding that it is impossible to waive the exception in 10 C.F.R. 51.53(c)(3)(ii)(L); CLI-13-7, 78 NRC 199 (2013)

### ETHICAL ISSUES

pro se representatives in licensing board proceedings, like all other representatives and/or lawyers, are required to be accurate and truthful and are subject to reprimand, censure, or suspension for failing in these duties; LBP-13-8, 78 NRC 1 (2013)

### EVIDENCE

document's unavailability does not render NRC Staff's or applicant's reliance on the NUREG-1150 decontamination cost values altogether unreasonable under NEPA; LBP-13-13, 78 NRC 246 (2013)

limited appearance statements do not constitute evidence but may assist the board and/or parties in defining the issues being considered; LBP-13-13, 78 NRC 246 (2013)

only alleged facts, not evidence or expert opinion, are required to support contention admissibility; LBP-13-8, 78 NRC 1 (2013)

to meet the reasonable assurance standard, applicant must make a showing that meets the preponderance-of-the-evidence threshold of compliance with the applicable regulations; LBP-13-13, 78 NRC 246 (2013)

## SUBJECT INDEX

### EVIDENTIARY HEARINGS

discovery cannot be completed nor can the evidentiary hearing be held until the safety evaluation report and all necessary environmental impact statements are completed; CLI-13-8, 78 NRC 219 (2013) hearings can provide the public venting that the circulation of an amended environmental impact statement would otherwise provide; LBP-13-13, 78 NRC 246 (2013) hearings on environmental issues addressed in the environmental impact statement may not commence before issuance of the final EIS; LBP-13-13, 78 NRC 246 (2013) hearings on safety issues may commence before publication of NRC Staff's safety evaluation if commencing the hearings at that time would expedite the proceeding; LBP-13-13, 78 NRC 246 (2013) parties filed proposed questions for the board to ask at the evidentiary hearing; LBP-13-13, 78 NRC 246 (2013) presiding officer must take into consideration NRC Staff's projected schedule for completion of its safety and environmental evaluations to ensure that the hearing schedule does not adversely impact Staff's ability to complete its reviews in a timely manner; LBP-13-13, 78 NRC 246 (2013) state's motion for cross-examination was granted, insofar as it would have a reasonable opportunity to examine witnesses pursuant to NRC regulations; LBP-13-13, 78 NRC 246 (2013)

### EXCEPTIONS

exception in section 51.53(c)(3)(ii)(L) operates as the functional equivalent of a Category 1 designation for Limerick and similarly situated plants for which SAMAs were already considered in an environmental impact statement or environmental assessment; CLI-13-7, 78 NRC 199 (2013) exception to the mootness doctrine occurs if the challenged action is too short in duration to be litigated and there is a reasonable expectation that the same party will be subjected to the same action again; CLI-13-9, 78 NRC 551 (2013) future cases are appropriately decided in the context of a concrete dispute, with self-interested parties vigorously advocating opposing positions; CLI-13-9, 78 NRC 551 (2013) limited exception to NRC's general prohibition against challenges to its rules or regulations in adjudicatory proceedings is provided in 10 C.F.R. 2.335(b); CLI-13-7, 78 NRC 199 (2013) mootness doctrine does not apply when the same litigants are likely to be subject to similar future action; CLI-13-10, 78 NRC 563 (2013)

### EXEMPTIONS

electronic filing is required, unless the presiding officer grants an exemption permitting an alternative filing method for good cause shown, or unless the filing falls within the scope of an exception; CLI-13-9, 78 NRC 551 (2013) for active structures, systems, and components, NRC chose to exempt from license renewal, challenges to a plant's operational activities covered by its current licensing basis; LBP-13-13, 78 NRC 246 (2013) license renewal applicants whose facilities qualify for the SAMA-analysis exception are exempt from addressing severe accident mitigation in their environmental reports, just as they would be exempt from addressing Category 1 issues; CLI-13-7, 78 NRC 199 (2013)

### EXTENSION OF TIME

filings deadlines may be extended or shortened by either the Commission or the presiding officer for good cause, or by stipulation approved by the Commission or the presiding officer; LBP-13-9, 78 NRC 37 (2013) health issues or an unexpected weather event are reasons that might constitute good cause for purposes of requesting an extension under section 2.307(a); LBP-13-9, 78 NRC 37 (2013) time for submitting a new/amended contention motion based on information that would be newly available, materially different, and otherwise timely submitted given the information's availability can be extended if the extension request is based on good cause; LBP-13-10, 78 NRC 117 (2013)

### FINAL ENVIRONMENTAL IMPACT STATEMENT

adjudicatory record, board decision, and any Commission appellate decisions become, in effect, part of the FEIS; LBP-13-13, 78 NRC 246 (2013) analysis and response to state's extensive comments on the draft supplemental environmental impact statement regarding state-specific energy conservation and efficiency as a replacement alternative fulfills NRC Staff's obligation to take a hard look at alternatives; LBP-13-13, 78 NRC 246 (2013)

## SUBJECT INDEX

as a NEPA analysis, the severe accident mitigation alternatives analysis is not based on either the best-case or the worst-case accident scenarios, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios; LBP-13-13, 78 NRC 246 (2013)

as part of its environmental review, NRC Staff must prepare a Record of Decision to accompany any Commission decision on any action for which a final EIS has been prepared; LBP-13-13, 78 NRC 246 (2013)

contention that requiring the tribe to formulate contentions before a final EIS is released and failing to follow scoping process violates NEPA is inadmissible; LBP-13-9, 78 NRC 37 (2013)

hearings on environmental issues addressed in the EIS may not commence before issuance of the final EIS; LBP-13-13, 78 NRC 246 (2013)

if modification of the FEIS by NRC Staff testimony or the board's decision is too substantial, recirculation of the FEIS would be required; LBP-13-13, 78 NRC 246 (2013)

NRC Staff is not obligated to fully adopt, or agree with, all comments to the draft supplemental EIS regarding the no-action alternative; LBP-13-13, 78 NRC 246 (2013)

NRC Staff is not required to analyze the need for the power for license renewal; LBP-13-13, 78 NRC 246 (2013)

NRC Staff will include responses to any comments on the draft EIS; LBP-13-13, 78 NRC 246 (2013)

NRC Staff will incorporate any new SAMA-related information that it finds to be significant in the final supplemental EIS; CLI-13-7, 78 NRC 199 (2013)

petitioner will have an opportunity to submit contentions based on the FSEIS if appropriate; LBP-13-9, 78 NRC 37 (2013)

severe accident mitigation alternatives analyses, as issues of mitigation, need only be discussed in sufficient detail to ensure that environmental consequences of the proposed project have been fairly evaluated; LBP-13-13, 78 NRC 246 (2013)

to satisfy its obligations under NEPA the final supplemental environmental impact statement need only explain any known shortcomings in available methodology, disclose incomplete or unavailable information and significant uncertainties, and make a reasoned evaluation of whether and to what extent these or other considerations credibly could alter the severe accident mitigation alternatives analysis conclusions; LBP-13-13, 78 NRC 246 (2013)

to the extent that any environmental findings by the presiding officer or the Commission differ from those in the final environmental impact statement, the FEIS is deemed modified by the decision; LBP-13-13, 78 NRC 246 (2013)

**FINAL SAFETY ANALYSIS REPORT**

applicant can only make a change in its procedures if screening demonstrates that 10 C.F.R. 50.59 does not apply or if the review under this regulation demonstrates that there are no remaining unreviewed safety questions; LBP-13-13, 78 NRC 246 (2013)

applicant's commitment in the updated FSAR cannot be changed without NRC Staff oversight and, specifically, evaluation of the eight criteria listed in 10 C.F.R. 50.59; LBP-13-13, 78 NRC 246 (2013)

commitments in the updated FSAR and aging management plan are legally binding as part of the current licensing basis throughout the period of extended operation and can only be changed through the section 50.59 process; LBP-13-13, 78 NRC 246 (2013)

critical aspects of an aging management plan such as a commitment for buried pipes can be captured in the updated FSAR supplement; LBP-13-13, 78 NRC 246 (2013)

current licensing basis includes applicant's commitments through incorporation of applicant's updated FSAR supplement; LBP-13-13, 78 NRC 246 (2013)

establishing safety limits for stored irradiated fuel is not appropriate, but measures to prevent a significant loss of coolant inventory under accident conditions that could challenge the cooling of the stored fuel are documented in the updated FSAR; DD-13-3, 78 NRC 571 (2013)

if a procedure is not specifically called out in the updated FSAR, licensee may change it without using the license amendment process described in 10 C.F.R. 50.59(c)(1); LBP-13-13, 78 NRC 246 (2013)

supplemental updated FSAR represents the capturing of the critical aspects of the program into the applicant's current licensing basis; LBP-13-13, 78 NRC 246 (2013)

**FINDING OF NO SIGNIFICANT IMPACT**

alternatively to preparing an environmental impact statement, NRC can conduct an environmental assessment and make a finding of no significant impact; LBP-13-13, 78 NRC 246 (2013)

## **SUBJECT INDEX**

### **FISH AND WILDLIFE SERVICE**

agencies are required to confer with FWS on any action that is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat; LBP-13-9, 78 NRC 37 (2013)  
if NRC engages in an informal consultation with FWS and it is determined that the project will not adversely affect listed species or critical habitat, it need not engage in formal consultation; LBP-13-9, 78 NRC 37 (2013)  
portions of a contention relevant to the completion of the Endangered Species Act § 7 consultation process and the adequacy of the NRC Staff's impact analyses relevant to the three named species meet the admissibility standards; LBP-13-9, 78 NRC 37 (2013)

### **FLOOD PROTECTION**

structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as floods without loss of capability to perform their safety functions; LBP-13-8, 78 NRC 1 (2013)

### **FLOODS**

contention that license renewal application fails to adequately address the risks of flooding from failure of upstream dams is inadmissible; LBP-13-8, 78 NRC 1 (2013)

### **FUEL**

contention alleging that license renewal application fails to consider plutonium fuel use, which would place it outside the current licensing basis, is inadmissible; LBP-13-8, 78 NRC 1 (2013)

See also Mixed Oxide Fuel

### **GENERIC ENVIRONMENTAL IMPACT STATEMENT**

challenges to the GEIS's determinations amount to attacks on NRC regulations and are not within the scope of license renewal proceedings; LBP-13-8, 78 NRC 1 (2013)  
license renewal applicant can adopt findings of the GEIS, designated as Category 1 issues in Table B-1 of Appendix B to Subpart A of Part 51; LBP-13-13, 78 NRC 246 (2013)  
to meet its environmental review burden in license renewal cases, NRC Staff developed the GEIS, which contains findings that apply to all nuclear power plants and are codified in Appendix B of Subpart A of 10 C.F.R. Part 51; LBP-13-13, 78 NRC 246 (2013)

### **GENERIC ISSUES**

adjudicating Category 1 issues site by site based merely on a claim of new and significant information, would defeat the purpose of resolving generic issues in a generic EIS; CLI-13-7, 78 NRC 199 (2013)  
Category 1 impacts are those that NRC has determined are common across plants and are outside the scope of individual license renewal proceedings; LBP-13-13, 78 NRC 246 (2013)  
challenges to the generic environmental impact statement's determinations amount to attacks on NRC regulations and are not within the scope of license renewal proceedings; LBP-13-8, 78 NRC 1 (2013)  
exception in 10 C.F.R. 51.53(c)(3)(ii)(L) operates as the functional equivalent of a Category 1 issue, removing SAMAs from litigation in certain license renewal adjudications; CLI-13-7, 78 NRC 199 (2013)  
when engaging in rulemaking, the Commission is carving out issues from adjudication for generic resolution; CLI-13-7, 78 NRC 199 (2013)

### **GENERIC SAFETY ISSUES**

if petitioner wishes to pursue its concerns about the safety of relocating certain surveillance frequencies generically, it may, at any time, file a petition for rulemaking to amend the regulation; CLI-13-10, 78 NRC 563 (2013)

### **GROUNDWATER**

contention that draft environmental impact statement fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 37 (2013)  
contention that draft environmental impact statement fails to analyze environmental impacts that will occur if applicant cannot restore groundwater to primary or secondary limits is admissible; LBP-13-10, 78 NRC 117 (2013)  
contention that draft environmental impact statement fails to include adequate hydrogeological analysis to assess potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 37 (2013)

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contention that draft environmental impact statement fails to include adequate hydrological information to demonstrate applicant's ability to contain groundwater fluid migration is admissible; LBP-13-10, 78 NRC 117 (2013)

contention that draft environmental impact statement lacks an adequate description of the present baseline (i.e., original or pre-mining) groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner, using proper sampling methodologies is admissible; LBP-13-10, 78 NRC 117 (2013)

### GROUNDWATER CONTAMINATION

contention that draft environmental impact statement fails to analyze the environmental impacts that will occur if applicant cannot restore groundwater to primary or secondary limits is admissible; LBP-13-10, 78 NRC 117 (2013)

contention that draft environmental impact statement fails to include an adequate hydrogeological analysis to assess adequate confinement and potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 37 (2013)

contention that draft environmental impact statement fails to include necessary information for adequate determination of baseline groundwater quality is admissible; LBP-13-9, 78 NRC 37 (2013)

purpose of ACLs is to address situations where restoring groundwater to baseline conditions or MCLs would not be practicable; LBP-13-9, 78 NRC 37 (2013)

three alternative standards for groundwater restoration at in situ recovery facilities are background concentrations, maximum values from chart 5C, or an alternate concentration limit; LBP-13-9, 78 NRC 37 (2013)

### HEALTH EFFECTS

license renewal contention alleging higher cancer death rates in local counties than the state average is inadmissible because it is based on unsupported speculation; LBP-13-8, 78 NRC 1 (2013)

### HEARING REQUESTS

boards may grant requests for hearing and petitions to intervene if they determine that requestor/petitioner has standing and has proposed at least one admissible contention; LBP-13-8, 78 NRC 1 (2013)

### HEARING REQUIREMENTS

NRC rules provide a mechanism for supplementing an original NEPA analysis, but the rules do not guarantee a hearing nor is a hearing necessary to satisfy NRC's NEPA obligations; CLI-13-7, 78 NRC 199 (2013)

### HEARING RIGHTS

criteria of 10 C.F.R. 50.59 were used as an analytical tool to address the question of whether a confirmatory action letter issued to the licensee by NRC Staff constituted a de facto license amendment that would be subject to a hearing opportunity; LBP-13-11, 78 NRC 177 (2013)

if licensee sought to relocate its surveillance frequencies from its operating license to a licensee-controlled document, then it would need to request a license amendment, which would trigger an opportunity for a member of the public to request a hearing; CLI-13-10, 78 NRC 563 (2013)

license amendments are subject to a hearing opportunity; CLI-13-9, 78 NRC 551 (2013)

no petition or other request for review of or hearing on the NRC Staff's significant hazards determination will be entertained by the Commission; LBP-13-11, 78 NRC 177 (2013)

### HIGH-LEVEL WASTE REPOSITORY APPLICATION

before a final decision approving or disapproving a construction authorization application may be reached, not only must the Staff complete its safety and environmental reviews but a formal hearing must be conducted, and the Commission's own review of both contested and uncontested issues must take place; CLI-13-8, 78 NRC 219 (2013)

Department of Energy may be required to supplement its final environmental impact statement when there is new information relevant to environmental concerns and bearing on the proposed action or its impacts; CLI-13-8, 78 NRC 219 (2013)

NRC is directed to adopt the Department of Energy environmental impact statement to the extent practicable; CLI-13-8, 78 NRC 219 (2013)

NRC is ordered to promptly resume the licensing process for the high-level radioactive waste repository construction authorization application unless and until Congress authoritatively says otherwise or there are no appropriated funds remaining; CLI-13-8, 78 NRC 219 (2013)

## SUBJECT INDEX

presiding officer in the adjudication will determine the extent to which adoption by the NRC of the Department of Energy's repository environmental impact statement and its supplements is practicable, which in turn will satisfy NRC's NEPA obligations; CLI-13-8, 78 NRC 219 (2013)

### HYDROGEOLOGY

contention that draft environmental impact statement fails to include adequate hydrological information to demonstrate applicant's ability to contain groundwater fluid migration is admissible; LBP-13-10, 78 NRC 117 (2013)

contention that draft environmental impact statement fails to include an adequate hydrogeological analysis to assess adequate confinement and potential impacts to groundwater is admissible; LBP-13-9, 78 NRC 37 (2013)

### ICE CONDENSER

contention that ice condenser containments lack acceptable aging management plans to adequately maintain critical components of the containment for 20 years of additional operation is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that license renewal application lacks supporting documentation providing analysis detailing licensee's assumptions that the ice condenser containment can withstand severe accidents without leaking is inadmissible; LBP-13-8, 78 NRC 1 (2013)

### IMMEDIATE EFFECTIVENESS REVIEW

licensee challenged NRC Staff's use of immediately effective orders after fulfilling the underlying requirements of those orders; CLI-13-9, 78 NRC 551 (2013)

### IN SITU LEACH MINING

claim that alternate concentration limit could not be accurately generated until the post-operational decommissioning process did not account for the possible creation of a bounding analysis based on the historical experience at other ISR sites; LBP-13-10, 78 NRC 117 (2013)

contention that the draft environmental impact statement fails to adequately assess cumulative impacts of the proposed action and another proposed ISL uranium mining operation is inadmissible; LBP-13-10, 78 NRC 117 (2013)

licensing strategy whereby applicant seeks initial in situ recovery licensing authorization to mine a particular area on which a central processing plant is located, followed thereafter by additional license amendments to cover ISR activities on contiguous or nearby areas, has been employed previously under the agency's ISR facility licensing regime; LBP-13-10, 78 NRC 117 (2013)

pertinent to the question of whether a facility is a connected action is whether the facility lacks any independent utility in the absence of the completion of the other sites; LBP-13-10, 78 NRC 117 (2013)

### INCORPORATION BY REFERENCE

reference to applicable sections of the GALL Report is permissible, but applicant must also provide sufficient plant-specific information to demonstrate that its aging management plan will be designed and implemented consistent with the report; LBP-13-13, 78 NRC 246 (2013)

### INITIAL DECISIONS

NRC Staff typically prepares the record of decision, but when a hearing is held, the board's initial decision constitutes the record of decision as to those issues that were litigated during the hearing; LBP-13-13, 78 NRC 246 (2013)

### INSPECTION

See NRC Inspection

### INSTRUMENTATION

request for enforcement action to modify operating licenses or require licensee to submit amendment requests to revise technical specifications for spent fuel pool instrumentation is denied; DD-13-3, 78 NRC 571 (2013)

request that technical specification for control room emergency ventilation system instrumentation be changed to require that the control building air intake radiation-high function be applicable whenever irradiated fuel is stored in the spent fuel pool is denied; DD-13-3, 78 NRC 571 (2013)

request that technical specification for secondary containment isolation instrumentation be changed to require the reactor building exhaust radiation-high function to be applicable whenever irradiated fuel is stored in the spent fuel pool is denied; DD-13-3, 78 NRC 571 (2013)

## **SUBJECT INDEX**

### **INTEGRATED PLANT ASSESSMENT**

applicant must demonstrate that effects of aging will be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation; LBP-13-13, 78 NRC 246 (2013)  
each application must contain an integrated plant assessment that is a detailed assessment, conducted at a component and structure level, rather than at a more generalized system level; LBP-13-13, 78 NRC 246 (2013)  
license renewal applications must include an IPA demonstrating that effects of aging on plant systems, structures, and components will be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation; LBP-13-8, 78 NRC 1 (2013); LBP-13-13, 78 NRC 246 (2013)

### **INTERESTED GOVERNMENTAL ENTITY**

entities who failed to raise admissible contentions were eligible to participate in the license renewal proceeding; LBP-13-13, 78 NRC 246 (2013)

### **INTERVENTION**

petition is denied for failure to submit an admissible contention; LBP-13-8, 78 NRC 1 (2013); LBP-13-11, 78 NRC 177 (2013)

### **INTERVENTION PETITIONS**

boards may grant requests for hearing and petitions to intervene if they determine that petitioner has standing and has proposed at least one admissible contention; LBP-13-8, 78 NRC 1 (2013); LBP-13-11, 78 NRC 177 (2013); LBP-13-12, 78 NRC 239 (2013)

boards may view petitioner's supporting information in a light favorable to petitioner, but petitioner (not the board) is required to supply all required elements for a valid intervention petition; LBP-13-8, 78 NRC 1 (2013)

petition pursuant to 10 C.F.R. 2.714, which was abolished in 2004, is treated as though filed under section 2.309; LBP-13-12, 78 NRC 239 (2013)

### **LEAKAGE**

containments must be designed to remain essentially leaktight during postulated accidents; LBP-13-8, 78 NRC 1 (2013)

contention that license renewal application lacks supporting documentation providing analysis detailing licensee's assumptions that the ice condenser containment can withstand severe accidents without leaking is inadmissible; LBP-13-8, 78 NRC 1 (2013)

liquid released from a pipe where the pressure boundary is maintained would not be sufficient to exceed the dose limits specified in 10 C.F.R. Part 54; LBP-13-13, 78 NRC 246 (2013)

### **LICENSE APPLICATIONS**

all information that applicant uses to support its license renewal application has to be maintained in an auditable and retrievable form; LBP-13-13, 78 NRC 246 (2013)

each reactor license renewal application must contain a list of structures and components subject to aging management review; LBP-13-13, 78 NRC 246 (2013)

if an application is withdrawn prior to issuance of a notice of hearing, the Commission shall dismiss the proceeding; CLI-13-10, 78 NRC 563 (2013)

See also License Renewal Applications; Operating License Amendment Applications; Operating License Applications

### **LICENSE CONDITIONS**

future actions on which the draft environmental impact statement purports to rely in its analysis of impacts constitute a license condition, the use of which is permitted in NEPA documents; LBP-13-9, 78 NRC 37 (2013)

record of decision is required to summarize any license conditions and monitoring programs adopted in connection with mitigation measures; LBP-13-9, 78 NRC 37 (2013)

### **LICENSE EXPIRATION**

contention that it is premature to relicense nuclear facilities with existing permits that will not expire for 11 to 14 years because relicensing more than 10 years in advance of the expiration of the existing licenses will result in environmental impact statements that will be stale by the time the existing licenses expire is inadmissible; LBP-13-12, 78 NRC 239 (2013)

## SUBJECT INDEX

earliest that a license renewal application may be submitted is 20 years before the expiration date of the operating license in effect; CLI-13-7, 78 NRC 199 (2013)  
plants may continue to operate until the operating license renewal adjudication is completed; LBP-13-13, 78 NRC 246 (2013)

time frame for SAMA analysis is inherent in NRC's regulatory scheme, which provides for a 40-year license term, with the possibility of license renewal for an additional 20-year period; CLI-13-7, 78 NRC 199 (2013)

### LICENSE RENEWAL

See Operating License Renewal; Operating License Renewal Proceedings

### LICENSE RENEWAL APPLICATIONS

applicant is required to list structures and components subject to an aging management review; LBP-13-8, 78 NRC 1 (2013)

earliest that a license renewal application may be submitted is 20 years before the expiration date of the operating license in effect; CLI-13-7, 78 NRC 199 (2013)

### LICENSEE CHARACTER

management integrity contentions are admissible in license renewal proceedings only if they rely on specific supporting information, including references to a serious incident involving shutdown where management responsible for the incident remained in place, a purported climate of reprisals for bringing forward safety issues, and reference to at least one expert in support of the contention; LBP-13-8, 78 NRC 1 (2013)

### LICENSING BOARD DECISIONS

Commission decision to vacate an unreviewed board decision does not intimate any opinion on the soundness of the board's decision; CLI-13-9, 78 NRC 551 (2013); CLI-13-10, 78 NRC 563 (2013)

Commission expects its licensing boards to review testimony, exhibits, and other evidence carefully and to resolve factual disputes; CLI-13-9, 78 NRC 551 (2013)

if modification of the final environmental impact statement by NRC Staff testimony or the board's decision is too substantial, recirculation of the FEIS would be required; LBP-13-13, 78 NRC 246 (2013)

licensing board erred in concluding that it is impossible to waive the exception in 10 C.F.R. 51.53(c)(3)(ii)(L); CLI-13-7, 78 NRC 199 (2013)

proposed questions filed by all parties will be publicly released by order of the board 30 days after its decision; LBP-13-13, 78 NRC 246 (2013)

to define the scope of an admitted contention properly, boards should specify which bases are admitted; LBP-13-10, 78 NRC 117 (2013)

to the extent that any environmental findings by the presiding officer or the Commission differ from those in the final environmental impact statement, the FEIS is deemed modified by the decision; LBP-13-13, 78 NRC 246 (2013)

unreviewed board decisions are not binding on future boards; CLI-13-10, 78 NRC 563 (2013)

### LICENSING BOARDS, AUTHORITY

board takes official notice of the contents of a document that was discussed at the hearing, but was not submitted as an exhibit by any party; LBP-13-13, 78 NRC 246 (2013)

boards are not empowered to reword the clear language of the Commission's regulations; LBP-13-12, 78 NRC 239 (2013)

boards cannot logically infer that identified members of one organization are also members of another organization for purpose of representational standing determinations; LBP-13-8, 78 NRC 1 (2013)  
boards have no authority to hear challenges to actions taken under 10 C.F.R. 50.59; LBP-13-11, 78 NRC 177 (2013)

boards may grant requests for hearing and petitions to intervene if they determine that petitioner has standing and has proposed at least one admissible contention; LBP-13-8, 78 NRC 1 (2013)

it is not the role of licensing boards to review and reconsider the wisdom of the Commission's regulations; LBP-13-12, 78 NRC 239 (2013)

licensing boards are the appropriate finders of fact in most circumstances, and referral of a matter for a fact-specific dispute occurs in the ordinary course of business; CLI-13-9, 78 NRC 551 (2013)

licensing boards may not disregard binding Commission case law; CLI-13-7, 78 NRC 199 (2013)

## SUBJECT INDEX

NRC Staff's independent finding of license renewal applicant's consistency with GALL does not prevent the board from reviewing the substance of the applicant's commitments and exploring deficiencies alleged by intervenors in its proceedings; LBP-13-13, 78 NRC 246 (2013)

piecemeal review of licensing board decisions is disfavored, but boards may refer rulings that, although interlocutory, raise significant and novel legal or policy issues or require Commission resolution to materially advance the orderly disposition of the proceeding; CLI-13-7, 78 NRC 199 (2013)

upon receipt of a motion to withdraw an application, the board may place terms and conditions on the withdrawal, deny the application, or dismiss the application with prejudice; CLI-13-10, 78 NRC 563 (2013)

where contentions are defective for any reason, licensing boards have no duty to make them acceptable under 10 C.F.R. 2.309; LBP-13-9, 78 NRC 37 (2013)

**LICENSING BOARDS, JURISDICTION**

boards lack jurisdiction to adjudicate challenges to NRC Staff's proposed no significant hazards consideration determination; LBP-13-11, 78 NRC 177 (2013)

**LIMITED APPEARANCE STATEMENTS**

board permitted any person who was not a party to the proceeding to submit written limited appearance statements concerning the issues in the proceeding; LBP-13-13, 78 NRC 246 (2013)

such statements do not constitute evidence but may assist the board and/or parties in defining the issues being considered; LBP-13-13, 78 NRC 246 (2013)

**LITIGATION EXPENSES**

opposing party's litigation expenses do not provide a basis for departing from the usual rule that a dismissal should be without prejudice; CLI-13-10, 78 NRC 563 (2013)

**MAINTENANCE PROGRAMS**

because irradiated fuel is continually present in the spent fuel pool once the reactor discharges the first batch of spent fuel, and conditions are most challenging during reactor shutdown for refueling, maintenance of equipment related to the safe storage of spent fuel is typically addressed as part of shutdown risk management; DD-13-3, 78 NRC 571 (2013)

**MANAGEMENT CHARACTER AND COMPETENCE**

contentions alleging that applicants' handling of past safety issues at the plants demonstrated that the applicants could not provide reasonable assurance that they would manage the effects of aging during the license renewal term are inadmissible; LBP-13-8, 78 NRC 1 (2013)

management integrity contentions are admissible in license renewal proceedings only if they rely on specific supporting information, including references to a serious incident involving shutdown where management responsible for the incident remained in place, a purported climate of reprisals for bringing forward safety issues, and reference to at least one expert in support of the contention; LBP-13-8, 78 NRC 1 (2013)

**MATERIALITY**

contention that does not focus at all on the technical specifications that are the subject of its request raises no issues that are material to any findings the NRC must make to approve the license amendment request; LBP-13-11, 78 NRC 177 (2013)

**MATERIALS LICENSES**

licensing strategy whereby applicant seeks initial in situ recovery licensing authorization to mine a particular area on which a central processing plant is located, followed thereafter by additional license amendments to cover ISR activities on contiguous or nearby areas, has been employed previously under the agency's ISR facility licensing regime; LBP-13-10, 78 NRC 117 (2013)

**MIGRATION TENET**

absent timely analysis of the section 2.309(c)(1) and (f)(1) new/amended contention precepts by the contention's sponsor, a board is not obligated to determine whether those new/amended contention requirements could have been met relative to a migrated environmental contention; LBP-13-10, 78 NRC 117 (2013)

admitted contentions challenging applicant's environmental report may, in appropriate circumstances, function as challenges to similar portions of NRC Staff's environmental impact statement; LBP-13-9, 78 NRC 37 (2013)

## SUBJECT INDEX

admitted contentions fall under the migration tenet when information in the draft environmental impact statement is sufficiently similar to information in the environmental report; LBP-13-9, 78 NRC 37 (2013)

although contention contesting applicant's environmental report generally may be viewed as a challenge to NRC Staff's subsequent draft environmental impact statement, new claims must be raised in a new or amended contention; LBP-13-10, 78 NRC 117 (2013)

because primary responsibility to address and comply with AEA safety-related requirements resides with a license applicant, that application, not NRC Staff's application review, is the focus of any safety-related contentions and thus the migration tenet does not apply; LBP-13-10, 78 NRC 117 (2013)

boards may construe an admitted contention contesting the environmental report as a challenge to a subsequently issued draft or final environmental impact statement without the need for intervenors to file a new or amended contention; LBP-13-9, 78 NRC 37 (2013)

contention challenging sufficiency of draft environmental impact statement as it pertains to protection of cultural resources falls within the migration tenet and is admissible; LBP-13-9, 78 NRC 37 (2013)

**MIGRATORY BIRD TREATY ACT**

claim that NRC Staff did not engage in the consultation process relevant to issues addressed by the Migratory Bird Treaty Act and that impacts to wildlife with respect to this Act are inadequately analyzed is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that draft environmental impact statement fails to comply with NEPA with regard to impacts on wildlife, and fails to comply with the Endangered Species Act and Migratory Bird Treaty Act is admissible in part; LBP-13-9, 78 NRC 37 (2013)

**MIXED OXIDE FUEL**

if licensee endeavors to use MOX fuel during the license renewal term, it will need to seek a license amendment; LBP-13-8, 78 NRC 1 (2013)

**MONITORING**

licensees must assess the condition of their components, monitor performance of structures, systems, and components to ensure that can of fulfill their intended functions, and establish a suitable test program to demonstrate that components will perform satisfactorily in-service; DD-13-2, 78 NRC 185 (2013)

**MOOTNESS**

admitted contentions of omission may be rendered moot by subsequent license-related documents filed by NRC Staff that address the alleged omission; LBP-13-9, 78 NRC 37 (2013)

because the plant is now permanently shut down and will not restart, no live controversy remains between the litigants; CLI-13-9, 78 NRC 551 (2013)

cases will be moot when the issues are no longer live, or the parties lack a cognizable interest in the outcome; CLI-13-9, 78 NRC 551 (2013)

controversy often ends during the pendency of appeals before the Commission or the Appeal Board; CLI-13-9, 78 NRC 551 (2013)

exception to the mootness doctrine is recognized when the same litigants are likely to be subject to similar future action; CLI-13-10, 78 NRC 563 (2013)

exception to the mootness doctrine occurs if the challenged action is too short in duration to be litigated and there is a reasonable expectation that the same party will be subjected to the same action again; CLI-13-9, 78 NRC 551 (2013)

exception to the mootness doctrine occurs when a case is capable of repetition, yet evading review; CLI-13-10, 78 NRC 563 (2013)

future cases are appropriately decided in the context of a concrete dispute, with self-interested parties vigorously advocating opposing positions; CLI-13-9, 78 NRC 551 (2013)

general proposition that an appeal is not moot if there is a possibility of similar acts recurring in the future applies to instances where the same litigants likely will be subject to similar future action; CLI-13-9, 78 NRC 551 (2013)

if a contention is rendered moot by information supplied by applicant or considered by NRC Staff in a draft environmental impact statement, the party that filed the original contention of omission must file a new or amended contention if it wishes to challenge the adequacy or sufficiency of the NRC Staff's treatment of the relevant issue; LBP-13-9, 78 NRC 37 (2013)

it is the Commission's customary practice to vacate a challenged licensing board decision when, during the pendency of an appeal, the proceeding becomes moot; CLI-13-10, 78 NRC 563 (2013)

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licensee challenged NRC Staff's use of immediately effective orders after fulfilling the underlying requirements of those orders; CLI-13-9, 78 NRC 551 (2013)

*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 551 (2013)

to show that a case is not moot, movant must show a reasonable expectation that it will be subjected to the same action again; CLI-13-9, 78 NRC 551 (2013)

vacatur is not automatic, but will depend on the nature and character of the conditions that have caused the case to become moot; CLI-13-9, 78 NRC 551 (2013)

with licensee's withdrawal of license amendment request, the proceeding is now moot; CLI-13-10, 78 NRC 563 (2013)

**MOTIONS**

state's motion for cross-examination was granted, insofar as it would have a reasonable opportunity to examine witnesses pursuant to NRC regulations; LBP-13-13, 78 NRC 246 (2013)

**MOTIONS FOR RECONSIDERATION**

motion is procedurally defective, out of time, and fails to assert compelling circumstances justifying reconsideration; CLI-13-7, 78 NRC 199 (2013)

**NATIONAL ENVIRONMENTAL POLICY ACT**

admissible contention challenging consideration of alternatives must show that a particular alternative was not discussed in the draft environmental impact statement and provide some support that the alternative is reasonable; LBP-13-9, 78 NRC 37 (2013)

agencies are not required to consider the possible environmental impacts of less imminent actions when preparing the impact statement on proposed actions; LBP-13-10, 78 NRC 117 (2013)

agencies are required to create an environmental impact statement, and the moment at which an agency must have a final statement ready is the time at which it makes a recommendation or report on a proposal for federal action; LBP-13-10, 78 NRC 117 (2013)

agencies need not discuss alternatives that are infeasible, ineffective, or inconsistent with the basic policy objectives for the management of the area; LBP-13-9, 78 NRC 37 (2013)

alternatives might not be feasible for a variety of reasons, including a failure of an alternative to meet the project's purpose and need; LBP-13-9, 78 NRC 37 (2013)

although NRC must take a hard look under NEPA, NEPA itself does not mandate particular results; LBP-13-13, 78 NRC 246 (2013)

analysis of cumulative impacts must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment; LBP-13-9, 78 NRC 37 (2013)

as a NEPA analysis, the severe accident mitigation alternatives analysis is not based on either the best-case or the worst-case accident scenarios, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios; LBP-13-13, 78 NRC 246 (2013)

broad national commitment to protecting and promoting environmental quality is declared by the Act; LBP-13-13, 78 NRC 246 (2013)

consistent with NEPA's rule of reason, applicant and NRC Staff acted on the basis of best available information and analysis in completing the SAMA evaluation; LBP-13-13, 78 NRC 246 (2013)

contention that draft environmental impact statement fails to comply with NEPA with regard to impacts on wildlife, and fails to comply with the Endangered Species Act and Migratory Bird Treaty Act is admissible in part; LBP-13-9, 78 NRC 37 (2013)

contention that NRC has failed to engage other relevant federal, state, and local agencies and has not analyzed impacts subject to jurisdiction and control of these other agencies, and has thus failed to comply with NEPA's action-forcing mandate and general purpose is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contention that NRC has promulgated a regulation that violates NEPA is inadmissible; LBP-13-12, 78 NRC 239 (2013)

contention that the draft environmental impact statement fails to consider all reasonable alternatives is inadmissible; LBP-13-9, 78 NRC 37 (2013)

development and discussion of a wide range of alternatives to any proposed federal action is so important that it is mandated by NEPA when any proposal involves unresolved conflicts concerning alternative

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uses of available resources, and the requirement is independent of and of wider scope than the duty to file an EIS; LBP-13-13, 78 NRC 246 (2013)

environmental contentions are initially based on applicant's environmental report which will inform the Staff's NEPA review; LBP-13-10, 78 NRC 117 (2013)

environmental justice, as applied to the NRC, means that the agency will make an effort under NEPA to become aware of the demographic and economic circumstances of local communities; LBP-13-13, 78 NRC 246 (2013)

establishment of baseline conditions of the affected environment is a fundamental requirement of the NEPA process; LBP-13-9, 78 NRC 37 (2013)

federal agencies are required, to the fullest extent possible, to include in every recommendation or report on proposals for major federal actions significantly affecting the quality of the human environment a detailed statement on the environmental impact of the proposed action; LBP-13-13, 78 NRC 246 (2013)

goals of NEPA are to ensure that agency decisionmakers will have detailed information concerning significant environmental impacts of proposed projects when they make their decisions and to guarantee that such information will be available to the larger audience that may also play a role in the decisionmaking process; LBP-13-13, 78 NRC 246 (2013)

in the context of license renewal, NRC's Atomic Energy Act safety review under Part 54 does not compromise or limit NEPA; LBP-13-8, 78 NRC 1 (2013)

NEPA allows agencies to select their own methodology as long as that methodology is reasonable; LBP-13-13, 78 NRC 246 (2013)

NEPA does not call for certainty or precision, but an estimate of anticipated (not unduly speculative) impacts; LBP-13-13, 78 NRC 246 (2013)

NEPA should be construed in the light of reason if it is not to demand virtually infinite study and resources; LBP-13-13, 78 NRC 246 (2013)

NEPA's hard-look requirement does not allow sweeping generalities about possible effects and risk without a justification as to why more definitive information was not provided; LBP-13-13, 78 NRC 246 (2013)

NEPA's requirements, like publication of the environmental impact statement, implement NEPA's sweeping policy goals by ensuring that agencies will take a hard look at environmental consequences; LBP-13-13, 78 NRC 246 (2013)

NEPA's rule of reason is a judicial device to ensure that common sense and reason are not lost in the rubric of regulation and thus requires only reasonable forecasting; LBP-13-13, 78 NRC 246 (2013)

nonspeculative irreversible and irretrievable commitment of resources requires that an ER provide an impacts analysis of such an occurrence; LBP-13-10, 78 NRC 117 (2013)

NRC has a continuing duty to take a hard look at new and significant information for each major federal action to be taken; CLI-13-7, 78 NRC 199 (2013)

NRC need only address reasonably foreseeable impacts, not those that are remote and speculative or inconsequentially small; LBP-13-13, 78 NRC 246 (2013)

on issues arising under the National Environmental Policy Act, participants shall file contentions based on applicant's environmental report; CLI-13-7, 78 NRC 199 (2013)

Part 40, Appendix A, Criteria 4(e) and 5G(2) refer to safety criteria that apply to applicants and licensees and are not relevant to the NEPA review; LBP-13-9, 78 NRC 37 (2013)

policies set forth by NEPA prevent NRC Staff from segmenting the disposal issues from the inquiry into whether applicant will be allowed to create 11e(2) byproduct material in the first instance; LBP-13-9, 78 NRC 37 (2013)

presiding officer in the adjudication will determine the extent to which adoption by the NRC of DOE's repository EIS and its supplements is practicable, which in turn will satisfy NRC's NEPA obligations; CLI-13-8, 78 NRC 219 (2013)

purpose of the supplemental-SAMA-analysis exception in 10 C.F.R. 51.53(c)(3)(ii)(L) is to reflect NRC's view that one SAMA analysis, as a general matter, satisfies NRC's NEPA obligation to consider measures to mitigate both the risk and the environmental impacts of severe accidents; CLI-13-7, 78 NRC 199 (2013)

severe accident mitigation alternatives analysis evaluates the degree to which specific additional mitigation measures may reduce the probability or consequences of various accident scenarios on a site-specific basis; LBP-13-13, 78 NRC 246 (2013)

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severe accident mitigation alternatives analysis is not based on either the best-case or the worst-case accident scenarios, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios; LBP-13-13, 78 NRC 246 (2013)

severe accident mitigation alternatives analysis is not part of the agency's safety review for license renewal under the Atomic Energy Act, but is instead a mitigation alternatives analysis conducted pursuant to NEPA; LBP-13-8, 78 NRC 1 (2013)

there will always be more data that could be gathered, but agencies must have some discretion to draw the line and move forward with decisionmaking; LBP-13-13, 78 NRC 246 (2013)

to bring NEPA into play, a possible future action must at least constitute a proposal pending before the agency (i.e., ripeness), and must be in some way interrelated with the action that the agency is actively considering (i.e., nexus); LBP-13-10, 78 NRC 117 (2013)

under the rule of reason, NRC's environmental analysis need only consider environmental impacts that are reasonably foreseeable, and need not consider remote and speculative scenarios; LBP-13-13, 78 NRC 246 (2013)

worst-case inquiry is not required; LBP-13-13, 78 NRC 246 (2013)

**NATIONAL HISTORIC PRESERVATION ACT**

alleged failure to consult with a tribe on historic and cultural resources is material and within the scope of a materials license proceeding; LBP-13-9, 78 NRC 37 (2013)

contention alleging a failure to protect historic and cultural resources is admissible; LBP-13-9, 78 NRC 37 (2013)

**NATIVE AMERICANS**

issue of the alleged failure to consult with a tribe on historic and cultural resources is material and within the scope of a materials license proceeding; LBP-13-9, 78 NRC 37 (2013)

**NEED FOR POWER**

contention that applicant fails to include need-for-power analyses in its environmental reports for operating license renewal is inadmissible; LBP-13-12, 78 NRC 239 (2013)

NRC Staff is not required to analyze the need for the power for license renewal; LBP-13-13, 78 NRC 246 (2013)

supplemental environmental impact statements for license renewal are not required to include discussion of need for power or the economic costs and economic benefits of the proposed action or of alternatives to the proposed action; LBP-13-13, 78 NRC 246 (2013)

**NO SIGNIFICANT HAZARDS DETERMINATION**

licensing boards lack jurisdiction to adjudicate challenges to NRC Staff's proposed no significant hazards consideration determination; LBP-13-11, 78 NRC 177 (2013)

**NO-ACTION ALTERNATIVE**

NRC Staff is not obligated to fully adopt, or agree with, all comments to the draft supplemental environmental impact statement regarding the no-action alternative; LBP-13-13, 78 NRC 246 (2013)

when taking the requisite hard look at environmental consequences of the alternatives to the proposed licensing action, the environmental impact statement must discuss the no-action alternative; LBP-13-13, 78 NRC 246 (2013)

**NONSAFETY-RELATED**

scope of license renewal consists of all nonsafety-related structures, systems, and components whose failure could prevent satisfactory accomplishment of any safety functions including control of excessive dose exposures; LBP-13-13, 78 NRC 246 (2013)

**NOTICE OF APPEARANCE**

although the better practice would be to file a notice of appearance, pursuant to section 2.304(d), the signature of a person signing a pleading is a representation that the document has been subscribed in the capacity specified with full authority; LBP-13-12, 78 NRC 239 (2013)

**NOTICE OF HEARING**

if an application is withdrawn prior to issuance of a notice of hearing, the Commission shall dismiss the proceeding; CLI-13-10, 78 NRC 563 (2013)

**NRC GUIDANCE DOCUMENTS**

document's unavailability does not render NRC Staff's or applicant's reliance on the NUREG-1150 decontamination cost values altogether unreasonable under NEPA; LBP-13-13, 78 NRC 246 (2013)

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incorporation by reference of the applicable section of the GALL Report is permissible, but applicant must also provide sufficient plant-specific information to demonstrate that its aging management plan will be designed and implemented consistent with the report; LBP-13-13, 78 NRC 246 (2013)

license renewal applicant's use of an aging management program identified in NUREG-1801, Generic Aging Lessons Learned Report, constitutes reasonable assurance that it will manage the targeted aging effect during the renewal period; LBP-13-13, 78 NRC 246 (2013)

NRC Staff's safety review for license renewal applications is guided by NUREG-1800, Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants, and NUREG-1801, Generic Aging Lessons Learned Report; LBP-13-13, 78 NRC 246 (2013)

NUREGs and Regulatory Guides are, by nature, only advisory and need not apply in all situations and do not themselves impose legal requirements on licensees; LBP-13-13, 78 NRC 246 (2013)

reference to an aging management plan in the GALL Report does not insulate that program from challenge in litigation; LBP-13-13, 78 NRC 246 (2013)

the GALL Report is a nonbinding guidance document which, in the case of revisions, does not have the force of the law; LBP-13-13, 78 NRC 246 (2013)

**NRC INSPECTION**

during the license renewal period, the regulations of 10 C.F.R. Part 50, Appendix B concerning ongoing inspections and audits apply; LBP-13-13, 78 NRC 246 (2013)

**NRC POLICY**

challenges to NRC rules and regulations are generally prohibited with limited exceptions in view of expanding opportunities for participation in Commission rulemaking proceedings and increased emphasis on rulemaking proceedings as the appropriate forum for settling basic policy issues; CLI-13-7, 78 NRC 199 (2013)

Commission disfavors issuance of advisory opinions; CLI-13-10, 78 NRC 563 (2013)

**NRC STAFF REVIEW**

although NRC must take a hard look under NEPA, NEPA itself does not mandate particular results; LBP-13-13, 78 NRC 246 (2013)

before a final decision approving or disapproving a construction authorization application may be reached, not only must the Staff complete its safety and environmental reviews but a formal hearing must be conducted, and the Commission's own review of both contested and uncontested issues must take place; CLI-13-8, 78 NRC 219 (2013)

contention that draft environmental impact statement fails to demonstrate adequate technical sufficiency and fails to present information in a clear, concise manner to enable effective public review is inadmissible; LBP-13-9, 78 NRC 37 (2013)

generalized grievances with the sufficiency of NRC Staff's analysis or the adequacy of included documentation are not enough to raise a proposed contention to the level of admissibility; LBP-13-9, 78 NRC 37 (2013)

in the context of license renewal, NRC's Atomic Energy Act safety review under Part 54 does not compromise or limit the National Environmental Policy Act; LBP-13-8, 78 NRC 1 (2013)

it is unnecessary to include in license renewal review all those issues already monitored, reviewed, and commonly resolved as needed by ongoing regulatory oversight; LBP-13-8, 78 NRC 1 (2013)

NRC does not mandate a specific approach to SAMA analyses, but instead, reviews each severe accident mitigation consideration provided by a license renewal applicant on its merits and determines whether it is reasonable; CLI-13-7, 78 NRC 199 (2013)

NRC is required to prepare a detailed statement discussing the environmental impacts, alternatives, and mitigation measures for any major federal action significantly affecting the quality of the human environment; CLI-13-7, 78 NRC 199 (2013)

NRC Staff must prepare a summary of determinations and conclusions and provide it to scoping participants; LBP-13-9, 78 NRC 37 (2013)

NRC Staff's independent finding of license renewal applicant's consistency with the GALL Report does not prevent the board from reviewing the substance of the applicant's commitments, and exploring deficiencies alleged by intervenors in its proceedings; LBP-13-13, 78 NRC 246 (2013)

presiding officer must take into consideration NRC Staff's projected schedule for completion of its safety and environmental evaluations to ensure that the hearing schedule does not adversely impact Staff's ability to complete its reviews in a timely manner; LBP-13-13, 78 NRC 246 (2013)

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safety review for license renewal applications is guided by NUREG-1800, Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants, and NUREG-1801, Generic Aging Lessons Learned Report; LBP-13-13, 78 NRC 246 (2013)

Staff must draw its own independent conclusion as to whether applicant's programs are in fact consistent with the GALL Report; LBP-13-13, 78 NRC 246 (2013)

to meet its environmental review burden in license renewal cases, NRC Staff developed the generic environmental impact statement, which contains findings that apply to all nuclear power plants and are codified in Appendix B of Subpart A of 10 C.F.R. Part 51; LBP-13-13, 78 NRC 246 (2013)

wavier of a rule pertaining to the agency's environmental responsibilities is possible; CLI-13-7, 78 NRC 199 (2013)

**NUCLEAR REGULATORY COMMISSION, AUTHORITY**

although MRC rules do not provide for filing of amicus curiae briefs on motions filed pursuant to 10 C.F.R. 2.323, as a matter of discretion, the Commission has reviewed both the brief and NRC Staff's opposition; CLI-13-9, 78 NRC 551 (2013)

as an exercise of the Commission's inherent supervisory authority over NRC adjudications, it directs that waste storage and any related contentions be held in abeyance pending further order; LBP-13-8, 78 NRC 1 (2013)

except upon a showing of substantial prejudice to the complaining party, it is always within the discretion of a court or an administrative agency to relax or modify its procedural rules adopted for the orderly transaction of business before it when in a given case the ends of justice require it; CLI-13-8, 78 NRC 219 (2013)

existence of a specific appropriation for licensing activities prevents NRC, under well-settled principles of appropriations law, from using its general appropriations for those activities; CLI-13-8, 78 NRC 219 (2013)

if Congress does not appropriate enough money to meet the needs of a class of beneficiaries prescribed by Congress, and if Congress is silent on how to handle this predicament, the law sensibly allows the administering agency to establish reasonable priorities and classifications; CLI-13-8, 78 NRC 219 (2013)

it would be inconsistent with NRC's statutorily mandated responsibilities to spend time and resources on matters that are of no substantive regulatory significance; CLI-13-7, 78 NRC 199 (2013)

NRC has discretion to transact its business broadly, through rulemaking, or case-by-case, through adjudication; CLI-13-7, 78 NRC 199 (2013)

NRC has the ongoing responsibility to oversee the safety and security of operating nuclear reactors and maintains an aggressive and ongoing program to oversee plant operation and to maintain compliance with the current licensing basis; LBP-13-8, 78 NRC 1 (2013)

NRC has the right to prepare an independent environmental impact statement whenever NRC has regulatory authority over an activity; LBP-13-9, 78 NRC 37 (2013)

NRC is authorized to enter into an agreement with the governor of any state if it finds that the state's regulatory program is adequate to protect the public health and safety with respect to the materials the state seeks to regulate and is compatible with NRC's program for regulation of such materials; CLI-13-6, 78 NRC 155 (2013)

NRC possesses the authority to change its procedures on a case-by-case basis; CLI-13-8, 78 NRC 219 (2013)

permissive "may" language of 40 C.F.R. 1508.25(a)(3) affords an agency more discretion in making a choice about whether a single EIS is the best way to assess similar actions; LBP-13-10, 78 NRC 117 (2013)

when a matter is not strictly adjudicatory in nature or otherwise does not fit cleanly within the procedures described in NRC rules of practice, the Commission undertakes a decision as an exercise of its inherent supervisory authority over agency proceedings; CLI-13-8, 78 NRC 219 (2013)

**NUCLEAR REGULATORY COMMISSION, JURISDICTION**

contention that NRC has failed to engage other relevant federal, state, and local agencies and has not analyzed impacts subject to jurisdiction and control of these other agencies, and has thus failed to comply with NEPA's action-forcing mandate and general purpose is inadmissible; LBP-13-9, 78 NRC 37 (2013)

## **SUBJECT INDEX**

NRC is not permitted to retain jurisdiction over a site at a licensee's request where the state seeks to assume regulatory authority over the site and meets the "adequacy" and "compatibility" criteria; CLI-13-6, 78 NRC 155 (2013)

### **NUCLEAR WASTE POLICY ACT**

NRC is directed to adopt the Department of Energy environmental impact statement to the extent practicable; CLI-13-8, 78 NRC 219 (2013)

### **OFFICIAL NOTICE**

board takes official notice of the contents of a document that was discussed at the hearing, but was not submitted as an exhibit by any party; LBP-13-13, 78 NRC 246 (2013)

### **OPERATING LICENSE AMENDMENT APPLICATIONS**

applicant is exempt from including in its environmental report a site-specific severe accident mitigation alternatives analysis because NRC Staff previously considered severe accident mitigation design alternatives in its final environmental impact statement; CLI-13-7, 78 NRC 199 (2013)  
upon receipt of a motion to withdraw an application, the board may place terms and conditions on the withdrawal, deny the application, or dismiss the application with prejudice; CLI-13-10, 78 NRC 563 (2013)

with licensee's withdrawal of license amendment request, the proceeding is now moot; CLI-13-10, 78 NRC 563 (2013)

### **OPERATING LICENSE AMENDMENT PROCEEDINGS**

contention that challenges the entire steam generator replacement project, rather than any aspect of the proposed changes to four technical specifications identified in the license amendment request is outside the scope of this proceeding; LBP-13-11, 78 NRC 177 (2013)

contention that does not focus at all on the technical specifications that are the subject of its request raises no issues that are material to any findings the NRC must make to approve the license amendment request; LBP-13-11, 78 NRC 177 (2013)

### **OPERATING LICENSE AMENDMENTS**

circumstances under which licensee may or may not make changes in a facility without obtaining a license amendment are set forth; LBP-13-11, 78 NRC 177 (2013)

commitments in the updated final safety analysis report and aging management plan are legally binding as part of the current licensing basis throughout the period of extended operation and can only be changed through the section 50.59 process; LBP-13-13, 78 NRC 246 (2013)

criteria of 10 C.F.R. 50.59 were used as an analytical tool to address the question of whether a confirmatory action letter issued to the licensee by the NRC Staff constituted a de facto license amendment that would be subject to a hearing opportunity; LBP-13-11, 78 NRC 177 (2013)  
if a procedure is not specifically called out in the updated final safety analysis report, licensee may change it without using the license amendment process described in 10 C.F.R. 50.59(c)(1); LBP-13-13, 78 NRC 246 (2013)

if licensee endeavors to use MOX fuel during the license renewal term, it will need to seek a license amendment; LBP-13-8, 78 NRC 1 (2013)

if licensee sought to make a change to a surveillance frequency that did not conform to the NEI 04-10 standard, then it would need to request a license amendment; CLI-13-10, 78 NRC 563 (2013)

if licensee sought to relocate its surveillance frequencies from its operating license to a licensee-controlled document, then it would need to request a license amendment, which would trigger an opportunity for a member of the public to request a hearing; CLI-13-10, 78 NRC 563 (2013)

license amendments are subject to a hearing opportunity; CLI-13-9, 78 NRC 551 (2013)  
licensees must obtain NRC approval before implementing changes to the facility or facility procedures that do not meet certain criteria; DD-13-3, 78 NRC 571 (2013)

request for enforcement action to modify operating licenses or require licensee to submit amendment requests to revise technical specifications for spent fuel pool instrumentation is denied; DD-13-3, 78 NRC 571 (2013)

revisions to technical specifications that are necessary to allow licensee to operate safely with the replacement steam generators after they have been installed require a license amendment; LBP-13-11, 78 NRC 177 (2013)

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### OPERATING LICENSE APPLICATIONS

applicants for nuclear power plant operating licenses must include technical specifications as part of the license; DD-13-3, 78 NRC 571 (2013)

### OPERATING LICENSE RENEWAL

aging management review consists of identifying the aging effects, and the aging management plans will manage aging effects and demonstrate that passive, long-lived structures, systems, and components will perform their intended functions during the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

aging management review only covers systems, structures, and components that perform their intended function without moving parts or without a change in configuration or properties; LBP-13-13, 78 NRC 246 (2013)

all information that applicant uses to support its license renewal application has to be maintained in an auditable and retrievable form; LBP-13-13, 78 NRC 246 (2013)

although commitment to implement an aging management plan consistent with the GALL Report is an acceptable method for compliance with 10 C.F.R. 54.21(c)(1)(iii), such a commitment does not absolve the applicant from demonstrating, prior to issuance of a renewed license, that plan is indeed consistent with the GALL Report; LBP-13-13, 78 NRC 246 (2013)

although the current licensing basis is not evaluated in the license renewal process, its provisions and protections remain in effect, complementing and supplementing any additional measures added due to aging management requirements; LBP-13-13, 78 NRC 246 (2013)

applicant can adopt findings of the generic environmental impact statement, designated as Category 1 issues in Table B-1 of Appendix B to Subpart A of Part 51; LBP-13-13, 78 NRC 246 (2013)

applicant must present an aging management plan with sufficient information that NRC will be able to draw its own independent conclusion as to whether the applicant's programs are in fact consistent with the GALL Report; LBP-13-13, 78 NRC 246 (2013)

applicant must provide a general description of the corporate-wide and plant-specific procedures sufficient to show that the ten elemental attributes of GALL have been addressed so as to demonstrate that the effects of aging on buried pipes will be adequately managed throughout the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

applicants are required to reassess any time-limited aging analyses that were based upon a particular time period, such as an assumed service life of a specific number of years or some period of operation defined by the original 40-year license term; LBP-13-13, 78 NRC 246 (2013)

applicants must demonstrate that they have programs in place that will effectively manage the effects of aging for specific types of structures and components during the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

applicants must identify in their environmental reports any new and significant information of which the applicant is aware to assist in the preparation of NRC's new-and-significant-information analysis; CLI-13-7, 78 NRC 199 (2013)

applicant's use of an aging management program identified in NUREG-1801, Generic Aging Lessons Learned Report, constitutes reasonable assurance that it will manage the targeted aging effect during the renewal period; LBP-13-13, 78 NRC 246 (2013)

applications must include an integrated plant assessment demonstrating that effects of aging on plant systems, structures, and components will be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation; LBP-13-8, 78 NRC 1 (2013)

because all aspects of licensee's current licensing basis will remain in effect during the period of extended operation, in the event that renewed licenses are issued, the corrective action requirements of 10 C.F.R. Part 50, Appendix B will apply; LBP-13-13, 78 NRC 246 (2013)

because it is a Category 1 issue, license renewal applicants need not address bird collisions in their environmental reports unless they are aware of relevant new and significant information; CLI-13-7, 78 NRC 199 (2013)

bird collisions have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term; CLI-13-7, 78 NRC 199 (2013)

commitment to implement an aging management plan consistent with the GALL Report is an acceptable method for compliance with 10 C.F.R. 54.21(c)(1)(iii); LBP-13-13, 78 NRC 246 (2013)

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commitments in the updated final safety analysis report and aging management plan are legally binding as part of the current licensing basis throughout the period of extended operation and can only be changed through the section 50.59 process; LBP-13-13, 78 NRC 246 (2013)

contention that it is premature to relicense nuclear facilities with existing permits that will not expire for 11 to 14 years because relicensing more than 10 years in advance of the expiration of the existing licenses will result in environmental impact statements that will be stale by the time the existing licenses expire is inadmissible; LBP-13-12, 78 NRC 239 (2013)

during the license renewal period, the regulations of 10 C.F.R. Part 50, Appendix B concerning ongoing inspections and audits apply; LBP-13-13, 78 NRC 246 (2013)

each application must contain an integrated plant assessment that is a detailed assessment, conducted at a component and structure level, rather than at a more generalized system level; LBP-13-13, 78 NRC 246 (2013)

each reactor license renewal application must contain a list of structures and components subject to aging management review; LBP-13-13, 78 NRC 246 (2013)

earliest that a license renewal application may be submitted is 20 years before the expiration date of the operating license in effect; CLI-13-7, 78 NRC 199 (2013)

environmental justice must be addressed in individual license renewal reviews; LBP-13-13, 78 NRC 246 (2013)

findings that NRC must make to issue a license renewal are described in 10 C.F.R. 54.29; LBP-13-13, 78 NRC 246 (2013)

for active structures, systems, and components, NRC chose to exempt from license renewal, challenges to a plant's operational activities covered by its current licensing basis; LBP-13-13, 78 NRC 246 (2013)

forty-year operating licenses can be renewed for an additional 20 years; LBP-13-13, 78 NRC 246 (2013)

if applicant uses a method other than identified in NUREG-1801, Generic Aging Lessons Learned Report, for managing effects of aging at its plant, then applicant should demonstrate to NRC Staff reviewers that its program includes the ten elements cited in the GALL Report and will likewise be effective; LBP-13-13, 78 NRC 246 (2013)

in establishing its license renewal process, NRC did not believe it necessary or appropriate to throw open the full gamut of provisions in a plant's current licensing basis to reanalysis because those are effectively addressed and maintained by ongoing agency oversight, review, and enforcement; LBP-13-13, 78 NRC 246 (2013)

integrated plant assessment must demonstrate that effects of aging will be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation; LBP-13-13, 78 NRC 246 (2013)

issues and concerns involved in an extended 20 years of operation are not identical to the issues reviewed when a reactor facility is first built and licensed; LBP-13-13, 78 NRC 246 (2013)

it is unnecessary to include in license renewal review all those issues already monitored, reviewed, and commonly resolved as needed by ongoing regulatory oversight; LBP-13-8, 78 NRC 1 (2013)

later revisions to license renewal application that bring the plant into compliance with the GALL-2 have generally been deemed acceptable; LBP-13-13, 78 NRC 246 (2013)

license renewal applicant is required to list structures and components subject to an aging management review; LBP-13-8, 78 NRC 1 (2013)

license renewal applicants whose facilities qualify for the SAMA-analysis exception are exempt from addressing severe accident mitigation in their environmental reports, just as they would be exempt from addressing Category 1 issues; CLI-13-7, 78 NRC 199 (2013)

license renewal safety reviews are generally limited to aging-related issues because NRC recognizes that it has the ongoing responsibility to oversee the safety and security of operating nuclear reactors, and maintains an aggressive and ongoing program to oversee plant operation; LBP-13-13, 78 NRC 246 (2013)

licensee's integrated plant assessment must demonstrate that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation; LBP-13-8, 78 NRC 1 (2013)

no finding of reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency is necessary for issuance of a renewed nuclear power reactor operating license; LBP-13-13, 78 NRC 246 (2013)

## SUBJECT INDEX

NRC does not mandate a specific approach to SAMA analyses, but instead, reviews each severe accident mitigation consideration provided by a license renewal applicant on its merits and determines whether it constitutes a reasonable consideration of SAMAs; CLI-13-7, 78 NRC 199 (2013)

NRC Staff is not required to analyze need for power; LBP-13-13, 78 NRC 246 (2013)

NRC Staff must draw its own independent conclusion as to whether applicant's programs are in fact consistent with the GALL Report; LBP-13-13, 78 NRC 246 (2013)

NRC Staff's safety review for license renewal applications is guided by NUREG-1800, Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants, and NUREG-1801, Generic Aging Lessons Learned Report; LBP-13-13, 78 NRC 246 (2013)

NRC will not issue licenses dependent upon the Waste Confidence Decision or the Temporary Storage Rule until the D.C. Circuit's remand is appropriately addressed; LBP-13-13, 78 NRC 246 (2013)

NRC's Atomic Energy Act safety review under Part 54 does not compromise or limit the National Environmental Policy Act; LBP-13-8, 78 NRC 1 (2013); LBP-13-13, 78 NRC 246 (2013)

passive systems, structures, and components are subject to an aging management review only if they are long-lived, that is, not subject to replacement based on a qualified life or specified time period; LBP-13-13, 78 NRC 246 (2013)

plants for which a SAMA analysis was conducted for the first time under section 51.53(c)(3)(ii)(L) may face general criticism that the passage of time between original licensing and renewal has rendered their SAMA analysis out of date upon application for a subsequent renewal term; CLI-13-7, 78 NRC 199 (2013)

plants may continue to operate until the operating license renewal adjudication is completed; LBP-13-13, 78 NRC 246 (2013)

reasonable assurance is not quantified as equivalent to a 95% (or any other percent) confidence level, but is based on sound technical judgment of the particulars of a case and on compliance with NRC regulations; LBP-13-13, 78 NRC 246 (2013)

reassessment of time-limited aging analyses must show that the earlier analysis will remain valid for the extended operation period or modify and extend the analysis to apply to a longer term, such as 60 years, or otherwise demonstrate that the effects of aging will be adequately managed in the renewal term; LBP-13-13, 78 NRC 246 (2013)

reissuance of a reactor license is a major federal action requiring an environmental review; LBP-13-13, 78 NRC 246 (2013)

scope of license renewal consists of all nonsafety-related structures, systems, and components whose failure could prevent satisfactory accomplishment of any safety functions including control of excessive dose exposures; LBP-13-13, 78 NRC 246 (2013)

scope of license renewal, including buried piping, addresses all safety-related structures, systems, and components that are relied upon to remain functional to ensure the integrity of the reactor coolant pressure boundary, the capability to shut down and maintain the safe shutdown of the reactor, or the capability to prevent or mitigate the consequences of accidents that could result in potential offsite radiation exposures; LBP-13-13, 78 NRC 246 (2013)

severe accident mitigation alternatives analysis is not part of the agency's safety review for license renewal under the Atomic Energy Act, but is instead a mitigation alternatives analysis conducted pursuant to the National Environmental Policy Act; LBP-13-8, 78 NRC 1 (2013)

statements in the application promising to develop and implement an aging management plan that would be consistent with the NRC guidance document applicable at the time the application was submitted is insufficient; LBP-13-13, 78 NRC 246 (2013)

supplemental environmental impact statements for license renewal are not required to include discussion of need for power or the economic costs and economic benefits of the proposed action or of alternatives to the proposed action; LBP-13-13, 78 NRC 246 (2013)

the mere fact that the intended function of transformers is being monitored in accordance with the current licensing basis does not exempt them from needing to be included in an aging management review program for license renewal; LBP-13-13, 78 NRC 246 (2013)

time frame for SAMA analysis is inherent in NRC's regulatory scheme, which provides for a 40-year license term, with the possibility of license renewal for an additional 20-year period; CLI-13-7, 78 NRC 199 (2013)

## SUBJECT INDEX

to meet its environmental review burden in license renewal cases, NRC Staff developed the generic environmental impact statement, which contains findings that apply to all nuclear power plants and are codified in Appendix B of Subpart A of 10 C.F.R. Part 51; LBP-13-13, 78 NRC 246 (2013)

**OPERATING LICENSE RENEWAL PROCEEDINGS**

applicant has the burden of proof on safety issues in a licensing proceeding; LBP-13-13, 78 NRC 246 (2013)

applicant is not required to identify safety-related incidents that have occurred during the current licensing term; LBP-13-8, 78 NRC 1 (2013)

board permitted any person who was not a party to the proceeding to submit written limited appearance statements concerning the issues in the proceeding; LBP-13-13, 78 NRC 246 (2013)

Category 1 impacts are those that NRC has determined are common across plants and are outside the scope of individual proceedings; LBP-13-13, 78 NRC 246 (2013)

challenges to Category 1 findings based on new and significant information require a waiver of 10 C.F.R. Part 51, Subpart A, Appendix B, in order to be litigated in a license renewal adjudication; CLI-13-7, 78 NRC 199 (2013)

challenges to the generic environmental impact statement's determinations amount to attacks on NRC regulations and are not within the scope of license renewal proceedings; LBP-13-8, 78 NRC 1 (2013)

compliance with the current licensing basis is not within the scope of a license renewal proceeding; LBP-13-8, 78 NRC 1 (2013)

contention alleging that license renewal application fails to consider plutonium fuel use, which would place it outside the current licensing basis, is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention alleging that licensee had a repeated pattern of violations which could undermine its ability to manage aging during the period of extended operations is not within the scope of license renewal; LBP-13-8, 78 NRC 1 (2013)

contention asserting that applicant's integrated plant assessment for the license renewal application fails to identify and assess safety-related incidents at the plant in its required time-limited aging analysis is a safety contention, and thus is not admissible; LBP-13-8, 78 NRC 1 (2013)

contention charging that a licensee's poor safety culture could undermine its ability to manage aging during the period of extended operations is not within the scope of license renewal; LBP-13-8, 78 NRC 1 (2013)

contention that applicant fails to include need-for-power analyses in its environmental reports for operating license renewal is inadmissible; LBP-13-12, 78 NRC 239 (2013)

contention that challenges lack of severe accident mitigation alternatives analysis in applicant's environmental report is inadmissible; CLI-13-7, 78 NRC 199 (2013)

contention that ice condenser containments lack acceptable aging management plans to adequately maintain critical components of the containment for 20 years of additional operation is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that license renewal application fails to adequately address the risks of flooding from failure of upstream dams is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that license renewal application lacks supporting documentation providing analysis detailing licensee's assumptions that the ice condenser containment can withstand severe accidents without leaking is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that licensee's history of managing whistleblower complaints regarding safety issues demonstrates that the plant will not be operated safely during the license renewal term is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that offers no explanation how its assertions are directly relevant to applicant's ability to manage the effects of aging during the renewal term is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contentions alleging that applicants' handling of past safety issues at the plants demonstrated that the applicants could not provide reasonable assurance that they would manage the effects of aging during the license renewal term are inadmissible; LBP-13-8, 78 NRC 1 (2013)

contentions that relate to current operations at a plant, as opposed to how it might operate during the period of extended operation, are inadmissible; LBP-13-8, 78 NRC 1 (2013)

environmental analysis of severe accidents is designated as a Category 2 site-specific issue for license renewal, and therefore the SAMA analysis normally is subject to challenge in a license renewal adjudicatory proceeding; CLI-13-7, 78 NRC 199 (2013)

## SUBJECT INDEX

exception in 10 C.F.R. 51.53(c)(3)(ii)(L) operates as the functional equivalent of a Category 1 issue, removing SAMAs from litigation in certain license renewal adjudications; CLI-13-7, 78 NRC 199 (2013)

if compliance with the current licensing basis cannot be fully achieved during the current licensing term and must be consummated during the period of extended operation, then a contention raising issues about such CLB compliance is within the scope of license renewal; LBP-13-8, 78 NRC 1 (2013)

inquiry into future, inchoate plans of licensee would generally invite petitioners in license renewal cases to raise safety issues involving a myriad of possible future license amendments; LBP-13-8, 78 NRC 1 (2013)

interested governmental entities who failed to raise admissible contentions were eligible to participate in the license renewal proceeding; LBP-13-13, 78 NRC 246 (2013)

license renewal contention alleging higher cancer death rates in local counties than the state average is inadmissible because it is based on unsupported speculation; LBP-13-8, 78 NRC 1 (2013)

license renewal should not include a new, broad-scoped inquiry into compliance that is separate from and parallel to ongoing compliance oversight activity; LBP-13-8, 78 NRC 1 (2013)

management integrity contentions are admissible in license renewal proceedings only if they rely on specific supporting information, including references to a serious incident involving shutdown where management responsible for the incident remained in place, a purported climate of reprisals for bringing forward safety issues, and reference to at least one expert in support of the contention; LBP-13-8, 78 NRC 1 (2013)

nothing in NRC case law or regulations suggests that license renewal is an occasion for far-reaching speculation about unimplemented and uncertain plans; LBP-13-8, 78 NRC 1 (2013)

NRC adjudicatory hearings are not EIS editing sessions wherein the board sits to parse and fine-tune EISs; LBP-13-13, 78 NRC 246 (2013)

NRC Staff has the overall burden of complying with NEPA; LBP-13-13, 78 NRC 246 (2013)

NRC Staff's independent finding of license renewal applicant's consistency with GALL does not prevent the board from reviewing the substance of the applicant's commitments and exploring deficiencies alleged by intervenors in its proceedings; LBP-13-13, 78 NRC 246 (2013)

offsite land use is a Category 2 impact because land-use changes may be perceived by some community members as adverse and by others as beneficial, and so, NRC Staff is unable to assess generically the potential significance of site-specific offsite land use impacts; LBP-13-13, 78 NRC 246 (2013)

proximity presumption applies in reactor operating license renewal proceeding; LBP-13-8, 78 NRC 1 (2013)

reference to an aging management plan in the GALL Report does not insulate that program from challenge in litigation; LBP-13-13, 78 NRC 246 (2013)

safety portion of contention questioning risk analysis of the long-term storage of irradiated nuclear fuel is inadmissible in license renewal proceeding; LBP-13-8, 78 NRC 1 (2013)

**PIPING**

critical aspects of an aging management plan such as a commitment for buried pipes can be captured in the updated final safety analysis report supplement; LBP-13-13, 78 NRC 246 (2013)

liquid released from a leaky pipe where the pressure boundary is maintained would not be sufficient to exceed the dose limits specified in 10 C.F.R. Part 54; LBP-13-13, 78 NRC 246 (2013)

**PLUTONIUM**

contention alleging that license renewal application fails to consider plutonium fuel use, which would place it outside the current licensing basis, is inadmissible; LBP-13-8, 78 NRC 1 (2013)

**POLICY STATEMENTS**

agencies cannot escape their responsibility to present evidence and reasoning supporting their substantive rules by announcing binding precedent in the form of a general statement of policy; LBP-13-13, 78 NRC 246 (2013)

See also NRC Policy

**POPULATION DENSITY**

applicant's estimate and NRC Staff's approval of projected population estimate for severe accident mitigation alternatives analysis are reasonable and satisfy the requirements under NEPA and 10 C.F.R. 51.53(c)(3)(ii)(L); LBP-13-13, 78 NRC 246 (2013)

## SUBJECT INDEX

### PRECEDENTIAL EFFECT

agencies act arbitrarily and capriciously when they ignore their own relevant precedent; CLI-13-7, 78 NRC 199 (2013)  
in vacating decisions of the Licensing and Appeal Boards, the Commission observed that the decisions also should not be used for guidance; CLI-13-9, 78 NRC 551 (2013)  
licensing boards may not disregard binding Commission case law; CLI-13-7, 78 NRC 199 (2013)  
*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 551 (2013)  
unreviewed board decisions do not create binding legal precedent; CLI-13-9, 78 NRC 551 (2013);  
CLI-13-10, 78 NRC 563 (2013)

### PREJUDICE

dismissal of an appeal with prejudice, similar to termination of a proceeding with prejudice, generally implies that the Commission has ruled on the merits of the appeal and such ruling is reserved for unusual situations involving substantial prejudice to an opposing party or to the public interest in general; CLI-13-10, 78 NRC 563 (2013)  
except upon a showing of substantial prejudice to the complaining party, it is always within the discretion of a court or an administrative agency to relax or modify its procedural rules adopted for the orderly transaction of business before it when in a given case the ends of justice require it; CLI-13-8, 78 NRC 219 (2013)  
no prejudice to either the intervenors or the public occurred where intervenors would have been in precisely the same position in any subsequent proceeding as if they had prevailed not only on their instant appeal but also on the subsequent merits portion of the proceeding; CLI-13-10, 78 NRC 563 (2013)  
opposing party's litigation expenses do not provide a basis for departing from the usual rule that a dismissal should be without prejudice; CLI-13-10, 78 NRC 563 (2013)  
upon receipt of a motion to withdraw an application, the board may place terms and conditions on the withdrawal, deny the application, or dismiss the application with prejudice; CLI-13-10, 78 NRC 563 (2013)

### PRESIDING OFFICER, AUTHORITY

presiding officer in the adjudication will determine the extent to which adoption by the NRC of DOE's repository EIS and its supplements is practicable, which in turn will satisfy NRC's NEPA obligations; CLI-13-8, 78 NRC 219 (2013)

### PRO SE LITIGANTS

representatives in licensing board proceedings, like all other representatives and/or lawyers, are required to be accurate and truthful and are subject to reprimand, censure, or suspension for failing in these duties; LBP-13-8, 78 NRC 1 (2013)

### PROPERTY VALUES

preponderance of the evidence supports conclusion that NRC Staff's reasoned, qualitative approach to weighing the costs and benefits of plant shutdown on property values and the local community is reasonable and satisfies regulatory requirements; LBP-13-13, 78 NRC 246 (2013)

### PROXIMITY PRESUMPTION

petitioner residing within 50 miles of a nuclear power plant is presumed to have standing; LBP-13-8, 78 NRC 1 (2013)  
proximity presumption applies in reactor operating license renewal proceedings; LBP-13-8, 78 NRC 1 (2013)

### PUBLIC COMMENTS

final environmental impact statement will include responses to any comments on the draft EIS; LBP-13-13, 78 NRC 246 (2013)

if modification of the final environmental impact statement by NRC Staff testimony or the board's decision is too substantial, recirculation of the FEIS would be required; LBP-13-13, 78 NRC 246 (2013)

NRC Staff is not obligated to fully adopt, or agree with, all comments to the draft supplemental environmental impact statement regarding the no-action alternative; LBP-13-13, 78 NRC 246 (2013)

## SUBJECT INDEX

NRC will consider all comments on the draft supplemental EIS regardless of whether the comment is directed to impacts in Category 1 or 2; CLI-13-7, 78 NRC 199 (2013)  
petitioner may submit to NRC Staff any information that it believes to be new and significant by participating in NRC's parallel NEPA process wherein an opportunity for public comment on the draft supplemental EIS is provided; CLI-13-7, 78 NRC 199 (2013)  
petitioner's rule waiver petition is referred to NRC Staff as additional comments on the draft supplemental EIS for the Staff's consideration and response; CLI-13-7, 78 NRC 199 (2013)

### QUALITY ASSURANCE

during the license renewal period, the regulations of 10 C.F.R. Part 50, Appendix B concerning ongoing inspections and audits apply; LBP-13-13, 78 NRC 246 (2013)

### QUALITY ASSURANCE PROGRAMS

licensee must implement managerial and administrative controls to ensure safe operation through implementation of the facility's quality assurance program; DD-13-3, 78 NRC 571 (2013)  
requirements relate to testing, calibration, or inspection to ensure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met for certain structures, systems, and components; CLI-13-10, 78 NRC 563 (2013)

### RADIOACTIVE RELEASES

buried structures, systems, and components must also control inadvertent radiological releases to ensure that dose exposures are below the regulatory limits; LBP-13-13, 78 NRC 246 (2013)  
liquid released from a leaky pipe where the pressure boundary is maintained would not be sufficient to exceed the dose limits specified in 10 C.F.R. Part 54; LBP-13-13, 78 NRC 246 (2013)

### RADIOACTIVE WASTE, HIGH-LEVEL

rule concerning storage and disposal of high-level waste is vacated and the issue remanded to the Commission to generate either a generic analysis that is forward looking and has enough breadth to the support the Commission's conclusions or a site-specific environmental impact statement in all relevant proceedings; LBP-13-13, 78 NRC 246 (2013)

### RADIOACTIVE WASTE DISPOSAL

contention that the draft environmental impact statement fails to include a reviewable plan for disposal of 11e(2) byproduct material is inadmissible; LBP-13-9, 78 NRC 37 (2013)  
policies set forth by NEPA prevent NRC Staff from segmenting the disposal issues from the inquiry into whether applicant will be allowed to create 11e(2) byproduct material in the first instance; LBP-13-9, 78 NRC 37 (2013)

### RADIOACTIVE WASTE STORAGE

as an exercise of the Commission's inherent supervisory authority over NRC adjudications, it directs that waste storage and any related contentions be held in abeyance pending further order; LBP-13-8, 78 NRC 1 (2013); LBP-13-13, 78 NRC 246 (2013)

NRC will not issue licenses dependent upon the Waste Confidence Decision or the Temporary Storage Rule until the D.C. Circuit's remand is appropriately addressed; LBP-13-13, 78 NRC 246 (2013)

rule concerning storage and disposal of high-level waste is vacated and the issue remanded to the Commission to generate either a generic analysis that is forward looking and has enough breadth to the support the Commission's conclusions or a site-specific environmental impact statement in all relevant proceedings; LBP-13-13, 78 NRC 246 (2013)

safety portion of contention questioning risk analysis of the long-term storage of irradiated nuclear fuel is inadmissible in license renewal proceedings; LBP-13-8, 78 NRC 1 (2013)

### RADIOACTIVITY

determination expressly required by the text "further reductions in residual radioactivity . . . were not being made because the residual levels associated with restricted conditions are ALARA" in 10 C.F.R. 20.1403 is an inquiry that focuses on how far it is possible, on a cost-effective basis, to further reduce the "residual levels"; CLI-13-6, 78 NRC 155 (2013)

"further reductions" in 10 C.F.R. 20.1403(a) necessarily refers to further reductions from the level of residual radioactivity that a licensee proposes to leave in place under its proposed restricted-release decommissioning plan; CLI-13-6, 78 NRC 155 (2013)

licensees, in determining whether levels are ALARA, are to consider detriments, such as traffic accidents; CLI-13-6, 78 NRC 155 (2013)

## SUBJECT INDEX

one of the benefits of removing enough radioactivity to cross the 25-mrem threshold is that the value of the affected property is likely to increase, and it is in this sense that NRC guidelines contemplate, as part of the ALARA analysis, a comparison between restricted release and unrestricted release; CLI-13-6, 78 NRC 155 (2013)

"reductions in residual radioactivity" refers only to dose reductions to the public that can be accomplished solely through the steps associated with unrestricted-release decommissioning, i.e., removal of contaminated material or decontamination; CLI-13-6, 78 NRC 155 (2013)

"residual levels," as used in the phrase "were not being made because the residual levels . . . are ALARA," in 10 C.F.R. 20.1403(a) refers back to, and is shorthand for, the term "residual radioactivity" used earlier in the introductory language; CLI-13-6, 78 NRC 155 (2013)

"residual radioactivity" is defined as radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control; CLI-13-6, 78 NRC 155 (2013)

### REACTORS

nuclear reactor is an apparatus, other than an atomic weapon, designed or used to sustain nuclear fission in a self-supporting chain reaction; DD-13-3, 78 NRC 571 (2013)

### REASONABLE ASSURANCE

license renewal applicant's use of an aging management program identified in NUREG-1801, Generic Aging Lessons Learned Report, constitutes reasonable assurance that it will manage the targeted aging effect during the renewal period; LBP-13-13, 78 NRC 246 (2013)

sound technical judgment of the particulars of a case and compliance with NRC regulations are the basis for a finding of reasonable assurance, not quantification as equivalent to a 95% (or any other percent) confidence level; LBP-13-13, 78 NRC 246 (2013)

to meet the reasonable assurance standard, applicant must make a showing that meets the preponderance-of-the-evidence threshold of compliance with the applicable regulations; LBP-13-13, 78 NRC 246 (2013)

### RECORD OF DECISION

as part of its environmental review, NRC Staff must prepare a Record of Decision to accompany any Commission decision on any action for which a final EIS has been prepared; LBP-13-13, 78 NRC 246 (2013)

NRC Staff typically prepares the record of decision but when a hearing is held, the board's initial decision constitutes the record of decision as to those issues that were litigated during the hearing; LBP-13-13, 78 NRC 246 (2013)

record of decision is required to summarize any license conditions and monitoring programs adopted in connection with mitigation measures; LBP-13-9, 78 NRC 37 (2013)

### REFERRED RULING

licensing boards are the appropriate finders of fact in most circumstances, and referral of a matter for a fact-specific dispute occurs in the ordinary course of business; CLI-13-9, 78 NRC 551 (2013)  
piecemeal review of licensing board decisions is disfavored, but boards may refer rulings that, although interlocutory, raise significant and novel legal or policy issues or require Commission resolution to materially advance the orderly disposition of the proceeding; CLI-13-7, 78 NRC 199 (2013)

### REFERRED RULINGS

prior to its revision, 10 C.F.R. 2.341(f)(1) required that the referred ruling raise a significant and novel legal or policy issue and necessitate resolution to materially advance the orderly disposition of the proceeding; CLI-13-7, 78 NRC 199 (2013)

### REFUELING OUTAGES

because irradiated fuel is continually present in the spent fuel pool once the reactor discharges the first batch of spent fuel, and conditions are most challenging during reactor shutdown for refueling, maintenance of equipment related to the safe storage of spent fuel is typically addressed as part of shutdown risk management; DD-13-3, 78 NRC 571 (2013)

### REGULATIONS

challenges to NRC rules and regulations are generally prohibited with limited exceptions in view of expanding opportunities for participation in Commission rulemaking proceedings and increased emphasis on rulemaking proceedings as the appropriate forum for settling basic policy issues; CLI-13-7, 78 NRC 199 (2013)

## SUBJECT INDEX

contentions that challenge an NRC regulation are inadmissible; LBP-13-9, 78 NRC 37 (2013); LBP-13-12, 78 NRC 239 (2013)

it is not the role of licensing boards to review and reconsider the wisdom of the Commission's regulations; LBP-13-12, 78 NRC 239 (2013)

### REGULATIONS, INTERPRETATION

board provides textual analysis and additional clarifying explanation of its interpretation of 10 C.F.R. 20.1403(a); CLI-13-6, 78 NRC 155 (2013)

boards are not empowered to reword the clear language of the Commission's regulations; LBP-13-12, 78 NRC 239 (2013)

determination expressly required by the text "further reductions in residual radioactivity . . . were not being made because the residual levels associated with restricted conditions are ALARA" in 10 C.F.R. 20.1403 is an inquiry that focuses on how far it is possible, on a cost-effective basis, to further reduce the "residual levels"; CLI-13-6, 78 NRC 155 (2013)

"further reductions" in 10 C.F.R. 20.1403(a) necessarily refers to further reductions from the level of residual radioactivity that a licensee proposes to leave in place under its proposed restricted-release decommissioning plan; CLI-13-6, 78 NRC 155 (2013)

good cause in section 2.307(a) does not share the same definition that is used for good cause in section 2.309(c); LBP-13-9, 78 NRC 37 (2013)

*Millstone* rule waiver decision, which aggregates cases interpreting the waiver standard, is an example of a uniform, permissible interpretation of NRC regulations; CLI-13-7, 78 NRC 199 (2013)

NRC case law has given meaning to the "special circumstances" requirement for rule waiver; CLI-13-7, 78 NRC 199 (2013)

Part 40, Appendix A, Criteria 4(e) and 5G(2) refer to safety criteria that apply to applicants and licensees and are not relevant to the NEPA review; LBP-13-9, 78 NRC 37 (2013)

permissive "may" language of 40 C.F.R. 1508.25(a)(3) affords an agency more discretion in making a choice about whether a single EIS is the best way to assess similar actions; LBP-13-10, 78 NRC 117 (2013)

prior to its revision, 10 C.F.R. 2.341(f)(1) required that a referred ruling raise a significant and novel legal or policy issue and necessitate resolution to materially advance the orderly disposition of the proceeding; CLI-13-7, 78 NRC 199 (2013)

purpose of the supplemental-SAMA-analysis exception in 10 C.F.R. 51.53(c)(3)(ii)(L) is to reflect NRC's view that one SAMA analysis, as a general matter, satisfies NRC's NEPA obligation to consider measures to mitigate both the risk and the environmental impacts of severe accidents; CLI-13-7, 78 NRC 199 (2013)

rather than assuming that a rule's purpose is simply to achieve its stated effect, one must look further by examining the underlying purpose of the requirement; CLI-13-7, 78 NRC 199 (2013)

"residual levels," as used in the phrase "were not being made because the residual levels . . . are ALARA," in 10 C.F.R. 20.1403(a) refers back to, and is shorthand for, the term "residual radioactivity" used earlier in the introductory language; CLI-13-6, 78 NRC 155 (2013)

the words "further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402" are analyzed; CLI-13-6, 78 NRC 155 (2013)

### REGULATORY OVERSIGHT PROCESS

applicant's commitment in the updated final safety analysis report cannot be changed without NRC Staff oversight and, specifically, evaluation of the eight criteria listed in 10 C.F.R. 50.59; LBP-13-13, 78 NRC 246 (2013)

NRC has the ongoing responsibility to oversee the safety and security of operating nuclear reactors and maintains an aggressive and ongoing program to oversee plant operation and to maintain compliance with the current licensing basis; LBP-13-8, 78 NRC 1 (2013)

### REPLY BRIEFS

new arguments may not be raised for the first time in a reply brief; LBP-13-12, 78 NRC 239 (2013)

### REQUEST FOR ACTION

if a stakeholder is of the view that immediate action is needed to remedy an ailing safety culture at any facility, then that matter should be brought immediately to the attention of the agency via section 2.206; LBP-13-8, 78 NRC 1 (2013)

## SUBJECT INDEX

members of the public may challenge an action taken under 10 C.F.R. 50.59 only by means of a petition under section 2.206; LBP-13-11, 78 NRC 177 (2013)

request for enforcement action to address concerns about operability of the submerged and/or wetted non-environmentally qualified inaccessible cables is denied; DD-13-2, 78 NRC 185 (2013)

request for enforcement action to modify operating licenses or require licensee to submit amendment requests to revise technical specifications for spent fuel pool instrumentation is denied; DD-13-3, 78 NRC 571 (2013)

### RESTRICTED RELEASE

ALARA analysis required under section 20.1403(a) calls for a licensee seeking to use restricted release to analyze whether it would be cost-beneficial to remove enough radioactive contamination from the site that doses to the public are no higher than 25 mrem per year without reliance on restricted-release controls; CLI-13-6, 78 NRC 155 (2013)

board provides textual analysis and additional clarifying explanation of its interpretation of 10 C.F.R. 20.1403(a); CLI-13-6, 78 NRC 155 (2013)

despite having passed the initial eligibility test for restricted release, if licensee cannot satisfy dose criteria, its site will not be considered acceptable for license termination under restricted conditions; CLI-13-6, 78 NRC 155 (2013)

doses yielded by the restricted-release and unrestricted-release decommissioning options are not susceptible to being compared meaningfully because of the significantly different risks and uncertainties associated with each option; CLI-13-6, 78 NRC 155 (2013)

eligibility test in section 20.1403(a) postulates a cost-benefit inquiry that is modeled on a traditional ALARA cost-benefit analysis, but that serves a different regulatory purpose; CLI-13-6, 78 NRC 155 (2013)

for license termination under restricted conditions, licensee must provide legally enforceable institutional controls that provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 25 mrem (0.25 mSv) per year; CLI-13-6, 78 NRC 155 (2013)

“further reductions” in 10 C.F.R. 20.1403(a) necessarily refers to further reductions from the level of residual radioactivity that a licensee proposes to leave in place under its proposed restricted-release decommissioning plan; CLI-13-6, 78 NRC 155 (2013)

if licensee demonstrates, through either of the two cost-benefit approaches, that removing radioactive contamination to the unrestricted-use level would not be cost-beneficial, then licensee then must show that, with the addition of engineered barriers and institutional controls, the average annual dose to the public will not exceed 25 mrem per year *and* is as low as is reasonably achievable; CLI-13-6, 78 NRC 155 (2013)

licensee must show that, if institutional controls fail, enough residual radioactivity has been removed from the site so that the average annual dose to the public will not exceed 100 mrem per year and is as low as is reasonably achievable; CLI-13-6, 78 NRC 155 (2013)

nothing in NRC license termination regulations, including the ALARA principle incorporated into section 20.1403(a), calls for a comparison of doses of the restricted-release and unrestricted-release decommissioning options; CLI-13-6, 78 NRC 155 (2013)

one of the benefits of removing enough radioactivity to cross the 25-mrem threshold is that the value of the affected property is likely to increase, and it is in this sense that NRC guidelines contemplate, as part of the ALARA analysis, a comparison between restricted release and unrestricted release; CLI-13-6, 78 NRC 155 (2013)

sites will be considered acceptable for license termination under restricted conditions if licensee can demonstrate that further reductions in residual radioactivity necessary to comply with the provisions of section 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA; CLI-13-6, 78 NRC 155 (2013)

threshold eligibility for restricted release requires that licensees demonstrate that remediation to the level of adequate protection for license termination cannot be achieved cost-beneficially through unrestricted release before allowing them to pursue restricted-release decommissioning; CLI-13-6, 78 NRC 155 (2013)

### REVIEW

See Appellate Review; Environmental Review; NRC Staff Review; Safety Review

## SUBJECT INDEX

### RISK MANAGEMENT

because irradiated fuel is continually present in the spent fuel pool once the reactor discharges the first batch of spent fuel, and conditions are most challenging during reactor shutdown for refueling, maintenance of equipment related to the safe storage of spent fuel is typically addressed as part of shutdown risk management; DD-13-3, 78 NRC 571 (2013) guidance for implementation of requirements during shutdown operations is provided in 10 C.F.R. 50.65(a)(4); DD-13-3, 78 NRC 571 (2013)

### RULE OF REASON

consistent with NEPA's rule of reason, applicant and NRC Staff acted on the basis of best available information and analysis in completing the SAMA evaluation; LBP-13-13, 78 NRC 246 (2013) NEPA should be construed in the light of reason if it is not to demand virtually infinite study and resources; LBP-13-13, 78 NRC 246 (2013)  
NEPA's rule of reason is a judicial device to ensure that common sense and reason are not lost in the rubric of regulation and thus requires only reasonable forecasting; LBP-13-13, 78 NRC 246 (2013) NRC's environmental analysis need only consider environmental impacts that are reasonably foreseeable, and need not consider remote and speculative scenarios; LBP-13-13, 78 NRC 246 (2013) severe accident mitigation alternatives analysis evaluation is governed by the rule of reason and alternatives must be bounded by some notion of feasibility; LBP-13-13, 78 NRC 246 (2013) there will always be more data that could be gathered, but agencies must have some discretion to draw the line and move forward with decisionmaking; LBP-13-13, 78 NRC 246 (2013)

### RULEMAKING

any interested person may petition the Commission to issue, amend, or rescind any regulation; CLI-13-7, 78 NRC 199 (2013); CLI-13-10, 78 NRC 563 (2013)

challenges to NRC rules and regulations are generally prohibited with limited exceptions in view of expanding opportunities for participation in Commission rulemaking proceedings and increased emphasis on rulemaking proceedings as the appropriate forum for settling basic policy issues; CLI-13-7, 78 NRC 199 (2013)

if petitioner wishes to pursue its concerns about the safety of relocating certain surveillance frequencies generically, it may, at any time, file a petition for rulemaking to amend the regulation; CLI-13-10, 78 NRC 563 (2013)

if petitioner's challenge to an agency rule or regulation relates to an issue of broader significance, then filing a petition for rulemaking is the better approach; CLI-13-7, 78 NRC 199 (2013)

NRC has discretion to transact its business broadly, through rulemaking, or case-by-case, through adjudication; CLI-13-7, 78 NRC 199 (2013)

sole remedy to challenge the wisdom or lawfulness of 10 C.F.R. 51.53(c)(2) is to file a petition for rulemaking with the Commission; LBP-13-12, 78 NRC 239 (2013)

when engaging in rulemaking, the Commission is carving out issues from adjudication for generic resolution; CLI-13-7, 78 NRC 199 (2013)

### RULES OF PRACTICE

admissible contentions must meet all of the requirements of 10 C.F.R. 2.309(f)(1)(i)-(vi); LBP-13-8, 78 NRC 1 (2013)

after the section 2.309(b) deadline has passed for submitting an initial hearing petition with one or more accompanying contentions, petitioner/intervenor who wishes to amend an already submitted or admitted contention or gain admission of a new contention must file a motion for leave to file such a new or amended contention; LBP-13-10, 78 NRC 117 (2013)

although the better practice would be to file a notice of appearance, pursuant to section 2.304(d), the signature of a person signing a pleading is a representation that the document has been subscribed in the capacity specified with full authority; LBP-13-12, 78 NRC 239 (2013)

bald allegations do not suffice to support contention admissibility; LBP-13-8, 78 NRC 1 (2013)

board permitted any person who was not a party to the proceeding to submit written limited appearance statements concerning the issues in the proceeding; LBP-13-13, 78 NRC 246 (2013)

contemporaneous judicial concepts are applied in NRC proceedings; LBP-13-8, 78 NRC 1 (2013)

contention rule is strict by design and does not permit the filing of a vague, unparticularized contention, unsupported by affidavit, expert, or documentary support; LBP-13-9, 78 NRC 37 (2013)

## SUBJECT INDEX

contention that challenges the entire steam generator replacement project, rather than any aspect of the proposed changes to four technical specifications identified in the license amendment request is outside the scope of this proceeding; LBP-13-11, 78 NRC 177 (2013)

contention that license renewal application fails to adequately address the risks from flooding from failure of upstream dams is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contention that provides no reference to any specific portion of the license amendment request that petitioners dispute is inadmissible; LBP-13-11, 78 NRC 177 (2013)

contention that requiring the tribe to formulate contentions before a final EIS is released and failing to follow scoping process violates NEPA is inadmissible; LBP-13-9, 78 NRC 37 (2013)

contentions based on bare assertions and speculation will not be admitted; LBP-13-8, 78 NRC 1 (2013)

contentions must satisfy the twin precepts of timeliness and admissibility; LBP-13-10, 78 NRC 117 (2013)

contentions need not be proven at the admissibility stage; LBP-13-8, 78 NRC 1 (2013)

contentions that are not accompanied by sufficient factual support to raise a genuine dispute are inadmissible; LBP-13-12, 78 NRC 239 (2013)

contentions that challenge an NRC regulation are inadmissible; LBP-13-12, 78 NRC 239 (2013)

degree to which new/amended contentions will be considered timely submitted is generally defined by the presiding officer as a specific period following the triggering event that makes the previously unavailable/materially different information available so as to be the basis for the new/amended contention; LBP-13-10, 78 NRC 117 (2013)

filings deadlines may be extended or shortened by either the Commission or the presiding officer for good cause, or by stipulation approved by the Commission or the presiding officer; LBP-13-9, 78 NRC 37 (2013)

good cause for late filing exists when information on which the filing is based was not previously available and is materially different from information previously available and the filing has been submitted in a timely fashion based on the availability of the subsequent information; LBP-13-9, 78 NRC 37 (2013)

good cause in section 2.307(a) does not share the same definition that is used for good cause in section 2.309(c); LBP-13-9, 78 NRC 37 (2013)

health issues or an unexpected weather event are reasons that might constitute good cause for purposes of requesting an extension under section 2.307; LBP-13-9, 78 NRC 37 (2013)

if a party submits a proposed contention after the initial filing deadline announced in the applicable *Federal Register* notice for submitting a hearing petition, it will not be entertained absent a determination by the presiding officer that a participant has demonstrated good cause; LBP-13-9, 78 NRC 37 (2013)

if the reason a motion to admit a new or amended contention was filed after the deadline does not relate to the substance of the filing itself, the standard in 10 C.F.R. 2.307 applies in determining whether the motion can be considered timely; LBP-13-9, 78 NRC 37 (2013)

intervention petitioner must proffer at least one admissible contention; LBP-13-8, 78 NRC 1 (2013)

limited appearance statements do not constitute evidence but may assist the board and/or parties in defining the issues being considered; LBP-13-13, 78 NRC 246 (2013)

limited exception to NRC's general prohibition against challenges to its rules or regulations in adjudicatory proceedings is provided in 10 C.F.R. 2.335(b); CLI-13-7, 78 NRC 199 (2013)

motion for reconsideration is procedurally defective, out of time, and fails to assert compelling circumstances justifying reconsideration; CLI-13-7, 78 NRC 199 (2013)

new or amended contentions generally must meet the six admissibility factors specified in section 2.309(f)(1); LBP-13-10, 78 NRC 117 (2013)

new or amended contentions must demonstrate good cause for post-initial-hearing petition deadline filing, based on three factors; LBP-13-10, 78 NRC 117 (2013)

NRC possesses the authority to change its procedures on a case-by-case basis; CLI-13-8, 78 NRC 219 (2013)

only alleged facts, not evidence or expert opinion, are required to support contention admissibility; LBP-13-8, 78 NRC 1 (2013)

organizations may base standing on either immediate or threatened injury to its organizational interests, or to the interests of identified members; LBP-13-8, 78 NRC 1 (2013)

## SUBJECT INDEX

petition pursuant to 10 C.F.R. 2.714, which was abolished in 2004 is treated as though filed under section 2.309; LBP-13-12, 78 NRC 239 (2013)

petitioner may raise a SAMA-related contention in a license renewal adjudication if it satisfies the general contention admissibility criteria in section 2.309(f)(1); CLI-13-7, 78 NRC 199 (2013)

petitioner must provide references to specific sources and documents on which petitioner intends to rely to support its contention; LBP-13-8, 78 NRC 1 (2013)

petitioner residing within 50 miles of a nuclear power plant is presumed to have standing; LBP-13-8, 78 NRC 1 (2013)

post-hearing petition contention (new or amended contention) also must satisfy the substantive contention admissibility standards; LBP-13-9, 78 NRC 37 (2013)

prior to its revision, 10 C.F.R. 2.341(f)(1) required that a referred ruling raise a significant and novel legal or policy issue and necessitate resolution to materially advance the orderly disposition of the proceeding; CLI-13-7, 78 NRC 199 (2013)

proximity presumption applies in reactor operating license renewal proceeding; LBP-13-8, 78 NRC 1 (2013)

purpose of 10 C.F.R. 2.309(f)(1) is to focus litigation on concrete issues and result in a clearer and more focused record for decision; LBP-13-8, 78 NRC 1 (2013)

regulations are not subject to collateral attack in NRC hearings; LBP-13-9, 78 NRC 37 (2013)

rule waiver petitions are reviewed under section 2.335 as well as case law; CLI-13-7, 78 NRC 199 (2013)

rule waiver petitions must include an affidavit that states with particularity the special circumstances that justify waiver of the rule; CLI-13-7, 78 NRC 199 (2013); LBP-13-12, 78 NRC 239 (2013)

rules on contention admissibility are strict by design; LBP-13-8, 78 NRC 1 (2013)

should a suspended adjudication resume, the Commission will consider appeals in due course, consistent with relevant Subpart J rules; CLI-13-8, 78 NRC 219 (2013)

time for submitting a new/amended contention motion based on information that would be newly available, materially different, and otherwise timely submitted given the information's availability can be extended if the extension request is based on good cause; LBP-13-10, 78 NRC 117 (2013)

to be admissible, late-filed contentions must not only meet standards of section 2.309(f)(1), but must also satisfy the timeliness requirements of section 2.309(c) or section 2.307; LBP-13-9, 78 NRC 37 (2013)

to demonstrate standing, petitioner must describe the nature of petitioner's right to be made a party, nature and extent of petitioner's property, financial, or other interest, and possible effect of any subsequent decision or order on petitioner's interest; LBP-13-8, 78 NRC 1 (2013)

to demonstrate standing, petitioner must show that it has suffered a distinct and palpable harm that constitutes injury-in-fact within the zone of interests arguably protected by the governing statute, that the injury can fairly be traced to the challenged action, and that the injury is likely to be redressed by a favorable decision; LBP-13-8, 78 NRC 1 (2013)

to derive standing from a member, organizations must demonstrate that the individual member has standing to participate and has authorized the organization to represent his or her interests; LBP-13-8, 78 NRC 1 (2013)

to intervene as a party in an adjudicatory proceeding concerning a proposed license action, petitioner must establish standing and proffer at least one admissible contention; LBP-13-11, 78 NRC 177 (2013)

to participate as a party in an adjudicatory proceeding concerning a proposed licensing action, petitioner must establish standing and proffer at least one admissible contention; LBP-13-12, 78 NRC 239 (2013)

waivers of NRC regulations may be granted in extraordinary situations where special circumstances can be demonstrated; LBP-13-12, 78 NRC 239 (2013)

### RULES OF PROCEDURE

except upon a showing of substantial prejudice to the complaining party, it is always within the discretion of a court or an administrative agency to relax or modify its procedural rules adopted for the orderly transaction of business before it when in a given case the ends of justice require it; CLI-13-8, 78 NRC 219 (2013)

### SAFETY ANALYSIS REPORT

construction permit applications must include the principal design criteria for a proposed facility and describe the design bases and their relationship to the principal design criteria in the preliminary safety analysis report; DD-13-3, 78 NRC 571 (2013)

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technical specifications derived from the analyses and evaluations included in the safety analysis report are required; DD-13-3, 78 NRC 571 (2013)

See also Final Safety Analysis Report

### SAFETY CULTURE

contention charging that a licensee's poor safety culture could undermine its ability to manage aging during the period of extended operations is not within the scope of license renewal; LBP-13-8, 78 NRC 1 (2013)

contention that licensee's history of managing whistleblower complaints regarding safety issues demonstrates that the plant will not be operated safely during the license renewal term is inadmissible; LBP-13-8, 78 NRC 1 (2013)

contentions alleging that applicants' handling of past safety issues at the plants demonstrated that the applicants could not provide reasonable assurance that they would manage the effects of aging during the license renewal term are inadmissible; LBP-13-8, 78 NRC 1 (2013)

if a stakeholder is of the view that immediate action is needed to remedy an ailing safety culture at any facility, then that matter should be brought immediately to the attention of the agency via section 2.206; LBP-13-8, 78 NRC 1 (2013)

### SAFETY EVALUATION REPORT

discovery cannot be completed nor can the evidentiary hearing be held until the SER and all necessary environmental impact statements are completed; CLI-13-8, 78 NRC 219 (2013)

hearings on safety issues may commence before publication of NRC Staff's safety evaluation if commencing the hearings at that time would expedite the proceeding; LBP-13-13, 78 NRC 246 (2013)

### SAFETY ISSUES

applicant has the burden of proof on safety issues in a licensing proceeding; LBP-13-13, 78 NRC 246 (2013)

because primary responsibility to address and comply with AEA safety-related requirements resides with a license applicant, that application, not the Staff's application review, is the focus of any safety-related contentions and thus the migration tenet does not apply; LBP-13-10, 78 NRC 117 (2013)

contention asserting that applicant's Integrated Plant Assessment for the license renewal application fails to identify and assess safety-related incidents at the plant in its required time-limited aging analysis is a safety contention, is not admissible; LBP-13-8, 78 NRC 1 (2013)

contentions challenging aging management of non-environmentally qualified inaccessible medium-voltage cables and wiring are decided; LBP-13-13, 78 NRC 246 (2013)

hearings on safety issues may commence before publication of NRC Staff's safety evaluation if commencing the hearings at that time would expedite the proceeding; LBP-13-13, 78 NRC 246 (2013)  
inquiry into future, inchoate plans of licensee would generally invite petitioners in license renewal cases to raise safety issues involving a myriad of possible future license amendments; LBP-13-8, 78 NRC 1 (2013)

license renewal applicant is not required to identify safety-related incidents that have occurred during the current licensing term; LBP-13-8, 78 NRC 1 (2013)

safety contention challenging aging management of electrical transformers is decided; LBP-13-13, 78 NRC 246 (2013)

safety matters generally need to be raised, relative to an admitted safety contention, in the context of the merits disposition of the already admitted safety contention or, in the case of a new issue, as a wholly new safety contention; LBP-13-10, 78 NRC 117 (2013)

safety portion of contention questioning risk analysis of the long-term storage of irradiated nuclear fuel is inadmissible in license renewal proceeding; LBP-13-8, 78 NRC 1 (2013)

to assess whether a contention is within the scope of, and material to, the proceeding, boards need to know the legal basis (safety or environmental) of the contention; LBP-13-8, 78 NRC 1 (2013)

See also Generic Safety Issues; Unresolved Safety Issues

### SAFETY REVIEW

before a final decision approving or disapproving a construction authorization application may be reached, not only must the Staff complete its safety and environmental reviews but a formal hearing must be conducted, and the Commission's own review of both contested and uncontested issues must take place; CLI-13-8, 78 NRC 219 (2013)

## SUBJECT INDEX

for active structures, systems, and components, NRC chose to exempt from license renewal, challenges to a plant's operational activities covered by its current licensing basis; LBP-13-13, 78 NRC 246 (2013) in establishing its license renewal process, NRC did not believe it necessary or appropriate to throw open the full gamut of provisions in a plant's current licensing basis to reanalysis because those are effectively addressed and maintained by ongoing agency oversight, review, and enforcement; LBP-13-13, 78 NRC 246 (2013)

in the context of license renewal, NRC's Atomic Energy Act review under Part 54 does not compromise or limit the National Environmental Policy Act; LBP-13-8, 78 NRC 1 (2013); LBP-13-13, 78 NRC 246 (2013)

license renewal safety reviews are generally limited to aging-related issues because NRC recognizes that it has the ongoing responsibility to oversee the safety and security of operating nuclear reactors, and maintains an aggressive and ongoing program to oversee plant operation; LBP-13-13, 78 NRC 246 (2013)

NRC Staff's safety review for license renewal applications is guided by NUREG-1800, Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants, and NUREG-1801, Generic Aging Lessons Learned Report; LBP-13-13, 78 NRC 246 (2013)

presiding officer must take into consideration NRC Staff's projected schedule for completion of its safety and environmental evaluations to ensure that the hearing schedule does not adversely impact Staff's ability to complete its reviews in a timely manner; LBP-13-13, 78 NRC 246 (2013)

severe accident mitigation alternatives analysis is not part of the agency's safety review for license renewal under the Atomic Energy Act, but is instead a mitigation alternatives analysis conducted pursuant to the National Environmental Policy Act; LBP-13-8, 78 NRC 1 (2013)

### SAFETY-RELATED

scope of license renewal, including buried piping, addresses all safety-related structures, systems, and components that are relied upon to remain functional to ensure the integrity of the reactor coolant pressure boundary, the capability to shut down and maintain the safe shutdown of the reactor, or the capability to prevent or mitigate the consequences of accidents which could result in potential offsite radiation exposures; LBP-13-13, 78 NRC 246 (2013)

structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as floods without loss of capability to perform their safety functions; LBP-13-8, 78 NRC 1 (2013)

### SANCTIONS

pro se representative in licensing board proceedings, like all other representatives and/or lawyers, are required to be accurate and truthful and are subject to reprimand, censure, or suspension for failing in these duties; LBP-13-8, 78 NRC 1 (2013)

### SCHEDULING

presiding officer must take into consideration NRC Staff's projected schedule for completion of its safety and environmental evaluations to ensure that the hearing schedule does not adversely impact Staff's ability to complete its reviews in a timely manner; LBP-13-13, 78 NRC 246 (2013)

subject to exceptions, the presiding officer must adhere to the schedule set forth in 10 C.F.R. Part 2, Appendix D; CLI-13-8, 78 NRC 219 (2013)

### SEGMENTATION

as to whether the connected action aspect of 40 C.F.R. 1508.25(a)(1) supports an improper-segmentation contention's admissibility, petitioners have not providing sufficient supporting information to show that a genuine dispute exists on the material issue; LBP-13-10, 78 NRC 117 (2013)

contention that NRC has failed to properly define the scope of the proposed major federal action and instead improperly segments the project is inadmissible; LBP-13-10, 78 NRC 117 (2013)

policies set forth by NEPA prevent NRC Staff from segmenting the disposal issues from the inquiry into whether applicant will be allowed to create 11e(2) byproduct material in the first instance; LBP-13-9, 78 NRC 37 (2013)

### SEVERE ACCIDENT MITIGATION ALTERNATIVES

environmental reports must include a discussion of SAMAs if NRC has not considered them previously for the applicant's plant; CLI-13-7, 78 NRC 199 (2013)

petitioner may raise a SAMA-related contention in a license renewal adjudication if it satisfies the general contention admissibility criteria in section 2.309(f)(1); CLI-13-7, 78 NRC 199 (2013)

## SUBJECT INDEX

record of decision is required to summarize any license conditions and monitoring programs adopted in connection with mitigation measures; LBP-13-9, 78 NRC 37 (2013)

**SEVERE ACCIDENT MITIGATION ALTERNATIVES ANALYSIS**

analysis is not based on either the best-case or the worst-case accident scenarios, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios; LBP-13-13, 78 NRC 246 (2013)

analysis must necessarily be site specific because the potential consequences of a severe accident will largely be the product of the location of the plant; LBP-13-13, 78 NRC 246 (2013)

applicant is exempt from including in its environmental report a site-specific severe accident mitigation alternatives analysis because NRC Staff previously considered severe accident mitigation design alternatives in its final environmental impact statement; CLI-13-7, 78 NRC 199 (2013)

applicant's estimate and NRC Staff's approval of projected population estimate for severe accident mitigation alternatives analysis are reasonable and satisfy the requirements under NEPA and 10 C.F.R. 51.53(c)(3)(ii)(L); LBP-13-13, 78 NRC 246 (2013)

as a NEPA analysis, the severe accident mitigation alternatives analysis is not based on either the best-case or the worst-case accident scenarios, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios; LBP-13-13, 78 NRC 246 (2013)

as issues of mitigation, SAMAs need only be discussed in sufficient detail to ensure that environmental consequences of the proposed project have been fairly evaluated; LBP-13-13, 78 NRC 246 (2013)

because the analysis is largely quantitative, resting on inputs used in computer modeling, it will always be possible to propose that the analysis use one or more other inputs; LBP-13-13, 78 NRC 246 (2013)

board assessment of a severe accident mitigation alternatives analysis does not consider whether more or different analysis can be done; LBP-13-13, 78 NRC 246 (2013)

consistent with NEPA's rule of reason, applicant and NRC Staff acted on the basis of best available information and analysis in completing the SAMA evaluation; LBP-13-13, 78 NRC 246 (2013)

contention that challenges lack of severe accident mitigation alternatives analysis in applicant's environmental report is inadmissible; CLI-13-7, 78 NRC 199 (2013)

contention that severe accident mitigation alternatives analysis does not accurately reflect decontamination and cleanup costs is decided; LBP-13-13, 78 NRC 246 (2013)

contention that the draft environmental impact statement fails to adequately describe or analyze proposed mitigation measures is admissible; LBP-13-9, 78 NRC 37 (2013)

contentions challenging a SAMA analysis must identify a deficiency that plausibly could alter the overall result of the analysis in a material way; LBP-13-13, 78 NRC 246 (2013)

degree to which specific additional mitigation measures may reduce the risk of various accident scenarios is analyzed on a site-specific basis; LBP-13-13, 78 NRC 246 (2013)

draft environmental impact statements need not contain more information on mitigation measures than a description of the mitigation measures on which the NRC relies and the explanation of the limiting effect of the mitigation measures on environmental impacts; LBP-13-9, 78 NRC 37 (2013)

environmental analysis of severe accidents is designated as a Category 2 site-specific issue for license renewal, and therefore the SAMA analysis normally is subject to challenge in a license renewal adjudicatory proceeding; CLI-13-7, 78 NRC 199 (2013)

evaluation is governed by the rule of reason and alternatives must be bounded by some notion of feasibility; LBP-13-13, 78 NRC 246 (2013)

exception in 10 C.F.R. 51.53(c)(3)(ii)(L) operates as the functional equivalent of a Category 1 issue, removing SAMAs from litigation in certain license renewal adjudications; CLI-13-7, 78 NRC 199 (2013)

given the quantitative nature of analysis, which rests largely on selected inputs, it may always be possible to conceive of alternative and more conservative inputs, whose use in the analysis could result in greater estimated accident consequences; LBP-13-13, 78 NRC 246 (2013)

license renewal applicants whose facilities qualify for the SAMA-analysis exception are exempt from addressing severe accident mitigation in their environmental reports, just as they would be exempt from addressing Category 1 issues; CLI-13-7, 78 NRC 199 (2013)

NEPA does not require agencies to resolve all uncertainties, including, uncertainties associated with the NUREG-1150 values used in the SAMA analysis; LBP-13-13, 78 NRC 246 (2013)

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NRC does not mandate a specific approach to SAMA analyses, but instead, reviews each severe accident mitigation consideration provided by a license renewal applicant on its merits and determines whether it constitutes a reasonable consideration of SAMAs; CLI-13-7, 78 NRC 199 (2013)

NRC Staff's approval of the NUREG-1150 TIMDEC and CDNFRM input values is reasonable and appropriate and satisfies the requirements under NEPA; LBP-13-13, 78 NRC 246 (2013)

plants for which a SAMA analysis was conducted for the first time under section 51.53(c)(3)(ii)(L) may face general criticism that the passage of time between original licensing and renewal has rendered their SAMA analysis out of date upon application for a subsequent renewal term; CLI-13-7, 78 NRC 199 (2013)

probabilities of accident scenarios are taken into account, ultimately assessing whether and to what extent the probability-weighted consequences of the analyzed severe accident sequences would decrease if a specific mitigation alternative were implemented; LBP-13-13, 78 NRC 246 (2013)

proper question is not whether there are plausible alternative choices for use in the SAMA analysis, but whether the analysis that was done is reasonable under NEPA; CLI-13-7, 78 NRC 199 (2013)

purpose of the supplemental-SAMA-analysis exception in 10 C.F.R. 51.53(c)(3)(ii)(L) is to reflect NRC's view that one SAMA analysis, as a general matter, satisfies NRC's NEPA obligation to consider measures to mitigate both the risk and the environmental impacts of severe accidents; CLI-13-7, 78 NRC 199 (2013)

question of material impacts hinges upon whether a severe accident mitigation alternative may be cost-beneficial to implement; LBP-13-13, 78 NRC 246 (2013)

SAMA analysis is a quantitative cost-benefit analysis, comparing the costs of a mitigation measure against its benefits; LBP-13-13, 78 NRC 246 (2013)

SAMA analysis is not part of the agency's safety review for license renewal under the Atomic Energy Act, but is instead a mitigation alternatives analysis conducted pursuant to the National Environmental Policy Act; LBP-13-8, 78 NRC 1 (2013)

simply because alternative inputs could be used does not demonstrate that the original inputs were unreasonable; LBP-13-13, 78 NRC 246 (2013)

time frame for SAMA analysis is inherent in NRC's regulatory scheme, which provides for a 40-year license term, with the possibility of license renewal for an additional 20-year period; CLI-13-7, 78 NRC 199 (2013)

to litigate a SAMA-related contention in adjudicatory proceedings where the SAMA-analysis exception applies, petitioner must obtain a waiver by satisfying the requirements in this section as well as the contention admissibility criteria in section 2.309(f)(1); CLI-13-7, 78 NRC 199 (2013)

to litigate SAMA-related issues requires demonstration of potentially significant deficiency in the SAMA analysis that credibly could render the SAMA analysis unreasonable under NEPA standards; CLI-13-7, 78 NRC 199 (2013); LBP-13-13, 78 NRC 246 (2013)

to satisfy its obligations under NEPA the final supplemental environmental impact statement need only explain any known shortcomings in available methodology, disclose incomplete or unavailable information and significant uncertainties, and make a reasoned evaluation of whether and to what extent these or other considerations credibly could alter the SAMA analysis conclusions; LBP-13-13, 78 NRC 246 (2013)

**SHUTDOWN**

because the plant is now permanently shut down and will not restart, no live controversy remains between the litigants; CLI-13-9, 78 NRC 551 (2013)

guidance for implementation of risk management requirements during shutdown operations is provided in 10 C.F.R. 50.65(a)(4); DD-13-3, 78 NRC 571 (2013)

preponderance of the evidence supports conclusion that NRC Staff's reasoned, qualitative approach to weighing the costs and benefits of plant shutdown on property values and the local community is reasonable and satisfies regulatory requirements; LBP-13-13, 78 NRC 246 (2013)

**SPECIAL CIRCUMSTANCES**

NRC case law has given meaning to the "special circumstances" requirement for rule waiver; CLI-13-7, 78 NRC 199 (2013)

## SUBJECT INDEX

### SPECIAL PROCEEDINGS

when a matter is not strictly adjudicatory in nature or otherwise does not fit cleanly within the procedures described in NRC rules of practice, the Commission undertakes a decision as an exercise of its inherent supervisory authority over agency proceedings; CLI-13-8, 78 NRC 219 (2013)

### SPENT FUEL MANAGEMENT

because irradiated fuel is continually present in the spent fuel pool once the reactor discharges the first batch of spent fuel, and conditions are most challenging during reactor shutdown for refueling, maintenance of equipment related to the safe storage of spent fuel is typically addressed as part of shutdown risk management; DD-13-3, 78 NRC 571 (2013)  
establishing safety limits for stored irradiated fuel is not appropriate, but measures to prevent a significant loss of coolant inventory under accident conditions that could challenge the cooling of the stored fuel are documented in the updated final safety analysis report; DD-13-3, 78 NRC 571 (2013)

### SPENT FUEL POOLS

establishing safety limits for stored irradiated fuel is not appropriate, but measures to prevent a significant loss of coolant inventory under accident conditions that could challenge the cooling of the stored fuel are documented in the updated final safety analysis report; DD-13-3, 78 NRC 571 (2013)  
request for enforcement action to modify operating licenses or require licensee to submit amendment requests to revise technical specifications for spent fuel pool instrumentation is denied; DD-13-3, 78 NRC 571 (2013)

request that the applicability for technical specification be revised to include spent fuel storage pool water level and AC and DC sources and distribution systems for shutdown whenever irradiated fuel is stored in the spent fuel pool instead of only when irradiated fuel assemblies are being moved in the SFP or secondary containment is denied; DD-13-3, 78 NRC 571 (2013)

request that TS for secondary containment isolation instrumentation be changed to require the reactor building exhaust radiation-high function to be applicable whenever irradiated fuel is stored in the spent fuel pool is denied; DD-13-3, 78 NRC 571 (2013)

### STANDARD OF PROOF

to meet the reasonable assurance standard, applicant must make a showing that meets the preponderance-of-the-evidence threshold of compliance with the applicable regulations; LBP-13-13, 78 NRC 246 (2013)

### STANDING TO INTERVENE

contemporaneous judicial concepts are applied in NRC proceedings; LBP-13-8, 78 NRC 1 (2013)  
petitioner residing within 50 miles of a nuclear power plant is presumed to have standing; LBP-13-8, 78 NRC 1 (2013)

proximity presumption applies in reactor operating license renewal proceedings; LBP-13-8, 78 NRC 1 (2013)

to demonstrate standing, petitioner must describe the nature of petitioner's right to be made a party, nature and extent of petitioner's property, financial, or other interest, and possible effect of any subsequent decision or order on petitioner's interest; LBP-13-8, 78 NRC 1 (2013)

to demonstrate standing, petitioner must show that it has suffered a distinct and palpable harm that constitutes injury-in-fact within the zone of interests arguably protected by the governing statute, that the injury can fairly be traced to the challenged action, and that the injury is likely to be redressed by a favorable decision; LBP-13-8, 78 NRC 1 (2013)

### STANDING TO INTERVENE, ORGANIZATIONAL

organizations may base standing on either immediate or threatened injury to its organizational interests, or to the interests of identified members; LBP-13-8, 78 NRC 1 (2013)

### STANDING TO INTERVENE, REPRESENTATIONAL

boards cannot logically infer that identified members of one organization are also members of another organization for purpose of representational standing determinations; LBP-13-8, 78 NRC 1 (2013)

organizations may base standing on either immediate or threatened injury to its organizational interests, or to the interests of identified members; LBP-13-8, 78 NRC 1 (2013)

to derive standing from a member, organizations must demonstrate that the individual member has standing to participate and has authorized the organization to represent his or her interests; LBP-13-8, 78 NRC 1 (2013)

## SUBJECT INDEX

### STATE REGULATORY REQUIREMENTS

because New Jersey has adopted more stringent criteria for license termination under restricted release than for unrestricted release, as well as more conservative criteria than NRC's. New Jersey's regulations are compatible with NRC's agreement-state policy; CLI-13-6, 78 NRC 155 (2013)

### STATUTORY CONSTRUCTION

doctrine of *expressio unis est exclusio alterius* instructs that where a law expressly describes a particular situation to which it shall apply, what was omitted or excluded was intended to be omitted or excluded; LBP-13-9, 78 NRC 37 (2013)

section 7 applies only where threatened and endangered species or critical habitats are present and impacts on a species are expected as a result of the proposed project; LBP-13-9, 78 NRC 37 (2013)

### STEAM GENERATORS

contention that challenges the entire steam generator replacement project, rather than any aspect of the proposed changes to four technical specifications identified in the license amendment request is outside the scope of this proceeding; LBP-13-11, 78 NRC 177 (2013)

contention that is primarily based on the fact that steam generator replacements in other reactors have experienced problems is not adequately supported; LBP-13-11, 78 NRC 177 (2013)

contention that steam generator replacement project be deemed an experiment and that an adjudicatory public hearing be convened for independent analysis of the project before it is implemented is inadmissible; LBP-13-11, 78 NRC 177 (2013)

revisions to technical specifications that are necessary to allow licensee to operate safely with the replacement steam generators after they have been installed require a license amendment; LBP-13-11, 78 NRC 177 (2013)

### SUA SPONTE ISSUES

amicus curiae briefs may be filed when the Commission has taken up a matter pursuant to section 2.341 or sua sponte; CLI-13-9, 78 NRC 551 (2013)

### SUBPART J PROCEEDINGS

should a suspended adjudication resume, the Commission will consider appeals in due course, consistent with relevant Subpart J rules; CLI-13-8, 78 NRC 219 (2013)

### SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

although NRC rules provide a mechanism for supplementing an original NEPA analysis, the rules do not guarantee a hearing nor is a hearing necessary to satisfy NRC's NEPA obligations; CLI-13-7, 78 NRC 199 (2013)

DOE may be required to supplement its final EIS when there is new information relevant to environmental concerns and bearing on the proposed action or its impacts; CLI-13-8, 78 NRC 219 (2013)

for license renewal, NRC Staff is not required to include discussion of need for power or the economic costs and economic benefits of the proposed action or of alternatives to the proposed action; LBP-13-13, 78 NRC 246 (2013)

if there remains major federal action to occur, and if the new information is sufficient to show that the remaining action will affect the quality of the human environment in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared; CLI-13-7, 78 NRC 199 (2013)

NRC rules provide a mechanism for supplementing an original NEPA analysis; CLI-13-7, 78 NRC 199 (2013)

NRC Staff need not recirculate a supplemental NEPA document every time new information becomes available; LBP-13-9, 78 NRC 37 (2013)

NRC Staff will incorporate any new SAMA-related information that it finds to be significant in the final supplemental EIS; CLI-13-7, 78 NRC 199 (2013)

NRC will consider all comments on the draft supplemental EIS regardless of whether the comment is directed to impacts in Category 1 or 2; CLI-13-7, 78 NRC 199 (2013)

petitioner may submit to NRC Staff any information that it believes to be new and significant by participating in NRC's parallel NEPA process wherein an opportunity for public comment on the draft supplemental EIS is provided; CLI-13-7, 78 NRC 199 (2013)

petitioner's rule waiver petition is referred to NRC Staff as additional comments on the draft supplemental EIS for the Staff's consideration and response; CLI-13-7, 78 NRC 199 (2013)

## **SUBJECT INDEX**

to assist NRC in preparation of a SEIS, license renewal applicants are required to prepare an environmental report; CLI-13-7, 78 NRC 199 (2013)  
when a supplement to an environmental impact statement is prepared, NRC Staff need not conduct a scoping process; LBP-13-9, 78 NRC 37 (2013)

### **SURVEILLANCE PROGRAMS**

if licensee sought to make a change to a surveillance frequency that did not conform to the NEI 04-10 standard, then it would then need to request a license amendment; CLI-13-10, 78 NRC 563 (2013)  
requirements relate to testing, calibration, or inspection to ensure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met for certain structures, systems, and components; CLI-13-10, 78 NRC 563 (2013)  
soundness of relocating certain surveillance frequencies from operating license technical specifications to licensee-controlled documents is better resolved in the context of a concrete dispute, where all of the parties have a stake in the outcome of the litigation; CLI-13-10, 78 NRC 563 (2013)

### **SURVEILLANCE TESTING**

if licensee sought to relocate its surveillance frequencies from its operating license to a licensee-controlled document, then it would need to request a license amendment, which would trigger an opportunity for a member of the public to request a hearing; CLI-13-10, 78 NRC 563 (2013)

### **SUSPENSION OF PROCEEDING**

should a suspended adjudication resume, the Commission will consider appeals in due course, consistent with relevant Subpart J rules; CLI-13-8, 78 NRC 219 (2013)

### **TECHNICAL SPECIFICATIONS**

applicants for nuclear power plant operating licenses must include TSs as part of the license; DD-13-3, 78 NRC 571 (2013)

construction permit applications must include the principal design criteria for a proposed facility and describe the design bases and their relationship to the principal design criteria in the preliminary safety analysis report; DD-13-3, 78 NRC 571 (2013)

contention that challenges the entire steam generator replacement project, rather than any aspect of the proposed changes to four technical specifications identified in the license amendment request is outside the scope of this proceeding; LBP-13-11, 78 NRC 177 (2013)

criteria for limiting conditions for operation address aspects of reactor operation that contribute to prevention of accidents and provide the capability to provide immediate mitigation of accidents; DD-13-3, 78 NRC 571 (2013)

design features to be included in TSs are those features of the facility such as materials of construction and geometric arrangements, which, if altered or modified, would have a significant effect on safety and are not covered by other TSs; DD-13-3, 78 NRC 571 (2013)

for limiting conditions for operation of a nuclear reactor, TSs must be established for each item meeting one or more of the four criteria specified in 10 C.F.R. 50.36(c)(2)(ii); DD-13-3, 78 NRC 571 (2013)  
licensees must obtain NRC approval before implementing changes to the facility or facility procedures that do not meet certain criteria; DD-13-3, 78 NRC 571 (2013)

limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility; DD-13-3, 78 NRC 571 (2013)

limits for safety systems settings and control settings, limiting conditions for operation, surveillance requirements, design features, and administrative controls must be included; DD-13-3, 78 NRC 571 (2013)

request for enforcement action to modify operating licenses or require licensee to submit amendment requests to revise technical specifications for spent fuel pool instrumentation is denied; DD-13-3, 78 NRC 571 (2013)

request that technical specification for control room emergency ventilation system instrumentation be changed to require that the control building air intake radiation-high function be applicable whenever irradiated fuel is stored in the spent fuel pool is denied; DD-13-3, 78 NRC 571 (2013)

request that the applicability for technical specification be revised to include secondary containment, secondary containment isolation dampers, standby gas treatment system, control room emergency ventilation, and control room air conditioning system, whenever irradiated fuel is stored in the spent fuel pool is denied; DD-13-3, 78 NRC 571 (2013)

## SUBJECT INDEX

request that the applicability for TS be revised to include spent fuel storage pool water level and AC and DC sources and distribution systems for shutdown whenever irradiated fuel is stored in the spent fuel pool instead of only when irradiated fuel assemblies are being moved in the SFP or secondary containment is denied; DD-13-3, 78 NRC 571 (2013)

request that TS for secondary containment isolation instrumentation be changed to require the reactor building exhaust radiation-high function to be applicable whenever irradiated fuel is stored in the spent fuel pool is denied; DD-13-3, 78 NRC 571 (2013)

revisions to technical specifications that are necessary to allow licensee to operate safely with the replacement steam generators after they have been installed require a license amendment; LBP-13-11, 78 NRC 177 (2013)

safety limits for nuclear reactors are limits on important process variables that are found to be necessary to reasonably protect the integrity of the physical barriers that guard against the uncontrolled release of radioactivity; DD-13-3, 78 NRC 571 (2013)

TSs derived from the analyses and evaluations included in the safety analysis report are required; DD-13-3, 78 NRC 571 (2013)

### TERMINATION OF LICENSE

because New Jersey has adopted more stringent criteria for license termination under restricted release than for unrestricted release, as well as more conservative criteria than NRC's, New Jersey's regulations are compatible with NRC's agreement-state policy; CLI-13-6, 78 NRC 155 (2013) despite having passed the initial eligibility test for restricted release, if licensee cannot satisfy dose criteria, its site will not be considered acceptable for license termination under restricted conditions; CLI-13-6, 78 NRC 155 (2013)

nothing in NRC license termination regulations, including the ALARA principle incorporated into section 20.1403(a), calls for a comparison of doses of the restricted-release and unrestricted-release decommissioning options; CLI-13-6, 78 NRC 155 (2013)

NRC prefers that licensees satisfy radiation dose criteria for license termination through unrestricted-release decommissioning if it is cost-beneficial to do so; CLI-13-6, 78 NRC 155 (2013) sites will be considered acceptable for license termination under restricted conditions if licensee can demonstrate that further reductions in residual radioactivity necessary to comply with the provisions of section 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are ALARA; CLI-13-6, 78 NRC 155 (2013)

### TESTING

although licensee can change from one proven test to another without prior NRC approval, it would need to follow the screening process under 10 C.F.R. 50.59 to ensure that it doesn't affect safety of the plant; LBP-13-13, 78 NRC 246 (2013)

if a different state-of-the-art test is developed prior to the time of the actual testing, applicant is allowed the flexibility to use the state-of-the-art test, subject to a prescreening for whether NRC approval is required; LBP-13-13, 78 NRC 246 (2013)

See also Surveillance Testing

### TIME LIMITED AGING ANALYSES

license renewal applicants are required to reassess any TLAs that were based upon a particular time period, such as an assumed service life of a specific number of years or some period of operation defined by the original 40-year license term; LBP-13-13, 78 NRC 246 (2013)

reassessment of TLAs must show that the earlier analysis will remain valid for the extended operation period or modify and extend the analysis to apply to a longer term, such as 60 years, or otherwise demonstrate that the effects of aging will be adequately managed in the renewal term; LBP-13-13, 78 NRC 246 (2013)

### TOTAL EFFECTIVE DOSE EQUIVALENT

for license termination under restricted conditions, licensee must provide legally enforceable institutional controls that provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 25 mrem (0.25 mSv) per year; CLI-13-6, 78 NRC 155 (2013)

sites will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a Total Effective Dose Equivalent to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater

## SUBJECT INDEX

sources of drinking water, and that the residual radioactivity has been reduced to levels that are as low as reasonably achievable; CLI-13-6, 78 NRC 155 (2013)

### U.S. CONSTITUTION

Supreme Court is permitted to decide legal questions only in the context of actual cases or controversies; CLI-13-9, 78 NRC 551 (2013)

### UNCERTAINTIES

NEPA does not require agencies to resolve all uncertainties, including uncertainties associated with the NUREG-1150 values used in the severe accident mitigation alternatives analysis; LBP-13-13, 78 NRC 246 (2013)

### UNRESOLVED SAFETY ISSUES

applicant can only make a change in its procedures if screening demonstrates that 10 C.F.R. 50.59 does not apply or if the review under this regulation demonstrates that there are no remaining unreviewed safety questions; LBP-13-13, 78 NRC 246 (2013)

### UNRESTRICTED RELEASE

board provides textual analysis and additional clarifying explanation of its interpretation of 10 C.F.R. 20.1403(a); CLI-13-6, 78 NRC 155 (2013)

doses yielded by the restricted-release and unrestricted-release decommissioning options are not susceptible to being compared meaningfully because of the significantly different risks and uncertainties associated with each option; CLI-13-6, 78 NRC 155 (2013)

nothing in NRC license termination regulations, including the ALARA principle incorporated into section 20.1403(a), calls for a comparison of doses of the restricted-release and unrestricted-release decommissioning options; CLI-13-6, 78 NRC 155 (2013)

one of the benefits of removing enough radioactivity to cross the 25-mrem threshold is that the value of the affected property is likely to increase, and it is in this sense that NRC guidelines contemplate, as part of the ALARA analysis, a comparison between restricted release and unrestricted release; CLI-13-6, 78 NRC 155 (2013)

“reductions in residual radioactivity” refers only to dose reductions to the public that can be accomplished solely through the steps associated with unrestricted-release decommissioning, i.e., removal of contaminated material or decontamination; CLI-13-6, 78 NRC 155 (2013)

sites will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a Total Effective Dose Equivalent to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater sources of drinking water, and that the residual radioactivity has been reduced to levels that are as low as reasonably achievable; CLI-13-6, 78 NRC 155 (2013)

### VACATUR

because the Commission’s vacatur order does not address the merits, it need not address an argument that NRC Staff impermissibly raises objections to the merits of the Board’s decision without filing a petition for review; CLI-13-9, 78 NRC 551 (2013)

Commission decision to vacate an unreviewed board decision does not intimate any opinion on the soundness of the board’s decision; CLI-13-9, 78 NRC 551 (2013); CLI-13-10, 78 NRC 563 (2013) denial of vacatur is merely one application of the principle that a suitor’s conduct in relation to the matter at hand may disentitle him to the relief he seeks; CLI-13-9, 78 NRC 551 (2013)

in vacating decisions of the Licensing and Appeal Boards, the Commission observed that the decisions also should not be used for guidance; CLI-13-9, 78 NRC 551 (2013)

it is the Commission’s customary practice to vacate a challenged licensing board decision when, during the pendency of an appeal, the proceeding becomes moot; CLI-13-10, 78 NRC 563 (2013)

*stare decisis* is not implicated where the board decision is unreviewed and therefore not binding on future tribunals, but as a prudential matter, the Commission vacates such decisions when appellate review is cut short by mootness; CLI-13-9, 78 NRC 551 (2013)

vacatur is designed to eliminate confusion and disagreement over what an unreviewed board decision may mean or what effect it may have in the resolution of safety or environmental issues in a future proceeding; CLI-13-9, 78 NRC 551 (2013)

vacatur is not automatic, but will depend on the nature and character of the conditions that have caused the case to become moot; CLI-13-9, 78 NRC 551 (2013)

## SUBJECT INDEX

### VENTILATION SYSTEMS

request that technical specification for control room emergency ventilation system instrumentation be changed to require that the control building air intake radiation-high function be applicable whenever irradiated fuel is stored in the spent fuel pool is denied; DD-13-3, 78 NRC 571 (2013)

### VIOLATIONS

contention alleging that licensee had a repeated pattern of violations which could undermine its ability to manage aging during the period of extended operations is not within the scope of license renewal; LBP-13-8, 78 NRC 1 (2013)

### WAIVER OF RULE

absent a petition for a waiver, no rule or regulation of the Commission is subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding; LBP-13-12, 78 NRC 239 (2013)

challenges to Category 1 findings based on new and significant information require a waiver of 10 C.F.R. Part 51, Subpart A, Appendix B, in order to be litigated in a license renewal adjudication; CLI-13-7, 78 NRC 199 (2013)

even a properly supported request for a waiver cannot be granted when it seeks to exempt circumstances that are common to a large class of facilities rather than unique; LBP-13-12, 78 NRC 239 (2013)  
in extraordinary situations where special circumstances can be demonstrated, waivers may be granted; LBP-13-12, 78 NRC 239 (2013)

licensing board erred in concluding that it is impossible to waive the exception in this section; CLI-13-7, 78 NRC 199 (2013)

*Millstone* rule waiver decision, which aggregates cases interpreting the waiver standard, is an example of a uniform, permissible interpretation of NRC regulations; CLI-13-7, 78 NRC 199 (2013)  
NRC case law has given meaning to the “special circumstances” requirement for rule waiver; CLI-13-7, 78 NRC 199 (2013)

petitioners face a substantial burden; CLI-13-7, 78 NRC 199 (2013)

petitioners must demonstrate that applying the rule would not serve its intended purpose; CLI-13-7, 78 NRC 199 (2013)

petitions must include an affidavit that states with particularity the special circumstances that justify waiver of the rule; CLI-13-7, 78 NRC 199 (2013); LBP-13-12, 78 NRC 239 (2013)

rule waiver petitions are reviewed under section 2.335 as well as case law; CLI-13-7, 78 NRC 199 (2013)

rule waiver would be necessary to litigate the issue of potentially new and significant information pertaining to bird collisions in an adjudicatory proceeding; CLI-13-7, 78 NRC 199 (2013)  
showing of uniqueness is necessary to justify setting aside a regulation for the purposes of a specific proceeding; CLI-13-7, 78 NRC 199 (2013)

to challenge generic application of a rule, petitioner seeking waiver must show that there is something extraordinary about the subject matter of the proceeding such that the rule should not apply; CLI-13-7, 78 NRC 199 (2013)

to litigate a SAMA-related contention in adjudicatory proceedings where the SAMA-analysis exception applies, petitioner must obtain a rule waiver as well as satisfy the contention admissibility criteria in section 2.309(f)(1); CLI-13-7, 78 NRC 199 (2013)

to litigate an issue that otherwise would be outside the scope of an adjudication, petitioner must file a petition for waiver showing that special circumstances with respect to the subject matter of the particular proceeding are such that the application of the rule or regulation (or a provision of it) would not serve the purposes for which it was adopted; CLI-13-7, 78 NRC 199 (2013)

waiver of a rule pertaining to the agency’s environmental responsibilities is possible; CLI-13-7, 78 NRC 199 (2013)

### WASTE CONFIDENCE RULE

motion to admit a new waste-confidence-related contention is being held in abeyance; CLI-13-7, 78 NRC 199 (2013)

rule concerning storage and disposal of high-level waste is vacated and the issue remanded to the Commission to generate either a generic analysis that is forward looking and has enough breadth to the support the Commission’s conclusions or a site-specific environmental impact statement in all relevant proceedings; LBP-13-13, 78 NRC 246 (2013)

## **SUBJECT INDEX**

### **WASTE DISPOSAL**

because petitioner fails to address information in the draft supplemental environmental impact statement and generic EIS that is relevant to the issue it raises, the board must reject arguments relating to liquid waste disposal; LBP-13-9, 78 NRC 37 (2013)  
contention that the draft environmental impact statement fails to take a hard look at impacts of the proposed mine related to air emissions and liquid waste disposal is inadmissible; LBP-13-9, 78 NRC 37 (2013)

See also Radioactive Waste Disposal

### **WASTE STORAGE**

See Radioactive Waste Storage

### **WATER QUALITY**

contention that draft environmental impact statement fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 37 (2013)  
contention that draft environmental impact statement fails to analyze environmental impacts that will occur if applicant cannot restore groundwater to primary or secondary limits is admissible; LBP-13-10, 78 NRC 117 (2013)  
contention that draft environmental impact statement fails to include necessary information for adequate determination of baseline groundwater quality is admissible; LBP-13-9, 78 NRC 37 (2013)  
contention that draft environmental impact statement lacks an adequate description of the present baseline (i.e., original or pre-mining) groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner, using proper sampling methodologies is admissible; LBP-13-10, 78 NRC 117 (2013)  
purpose of alternate concentration limits is to address situations where restoring groundwater to baseline conditions or MCLs would not be practicable; LBP-13-9, 78 NRC 37 (2013)  
three alternative standards for groundwater restoration at ISR facilities are background concentrations, maximum values from chart 5C, or an alternate concentration limit; LBP-13-9, 78 NRC 37 (2013)

### **WATER SUPPLY**

contention that the draft environmental impact statement fails to adequately analyze groundwater quantity impacts is admissible; LBP-13-9, 78 NRC 37 (2013)

### **WITHDRAWAL**

if an application is withdrawn prior to issuance of a notice of hearing, the Commission shall dismiss the proceeding; CLI-13-10, 78 NRC 563 (2013)  
upon receipt of a motion to withdraw an application, the board may place terms and conditions on the withdrawal, deny the application, or dismiss the application with prejudice; CLI-13-10, 78 NRC 563 (2013)  
with licensee's withdrawal of license amendment request, the proceeding is now moot; CLI-13-10, 78 NRC 563 (2013)

### **WITNESSES, EXPERT**

boards may appropriately view petitioner's supporting information in a light favorable to the petitioner, but neither mere speculation nor bare or conclusory assertions, even by an expert, will suffice to allow the admission of a proffered contention; LBP-13-10, 78 NRC 117 (2013)

### **WRIT OF MANDAMUS**

NRC is ordered to promptly resume the licensing process for the high-level radioactive waste repository construction authorization application unless and until Congress authoritatively says otherwise or there are no appropriated funds remaining; CLI-13-8, 78 NRC 219 (2013)

## FACILITY INDEX

BRAIDWOOD NUCLEAR POWER STATION, Units 1 and 2; Docket Nos. 50-454-LR, 50-455-LR  
OPERATING LICENSE RENEWAL; November 19, 2013; MEMORANDUM AND ORDER (Denying  
Hearing Request and Petition to Intervene); LBP-13-12, 78 NRC 239 (2013)

BRUNSWICK STEAM ELECTRIC PLANT, Units 1 and 2; Docket Nos. 50-325, 50-324  
REQUEST FOR ACTION; December 30, 2013; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206;  
DD-13-3, 78 NRC 571 (2013)

BYRON NUCLEAR POWER STATION, Units 1 and 2; Docket Nos. 50-456-LR, 50-457-LR  
OPERATING LICENSE RENEWAL; November 19, 2013; MEMORANDUM AND ORDER (Denying  
Hearing Request and Petition to Intervene); LBP-13-12, 78 NRC 239 (2013)

DAVIS-BESSE NUCLEAR POWER STATION, Unit 1; Docket No. 50-346-LA  
LICENSE AMENDMENT; August 12, 2013; MEMORANDUM AND ORDER (Denying Petition for  
Intervention and Request for Hearing); LBP-13-11, 78 NRC 177 (2013)

DEWEY-BURDOCK IN SITU URANIUM RECOVERY FACILITY; Docket No. 40-9075-MLA  
MATERIALS LICENSE AMENDMENT; July 22, 2013; MEMORANDUM AND ORDER (Ruling on  
Proposed Contentions Related to the Draft Supplemental Environmental Impact Statement); LBP-13-9,  
78 NRC 37 (2013)

HIGH-LEVEL WASTE REPOSITORY; Docket No. 63-001  
CONSTRUCTION AUTHORIZATION; November 18, 2013; MEMORANDUM AND ORDER; CLI-13-8,  
78 NRC 219 (2013)

INDIAN POINT, Units 2 and 3; Docket Nos. 50-247-LR, 50-286-LR  
OPERATING LICENSE RENEWAL; November 27, 2013; PARTIAL INITIAL DECISION (Ruling on  
Track 1 Contentions); LBP-13-13, 78 NRC 246 (2013)

LIMERICK GENERATING STATION, Units 1 and 2; Docket Nos. 50-352-LR, 50-353-LR  
OPERATING LICENSE RENEWAL; October 31, 2013; MEMORANDUM AND ORDER; CLI-13-7, 78  
NRC 199 (2013)

PILGRIM NUCLEAR POWER STATION; Docket No. 50-293  
REQUEST FOR ACTION; September 26, 2013; FINAL DIRECTOR'S DECISION UNDER 10 C.F.R.  
§ 2.206; DD-13-2, 78 NRC 185 (2013)

SAN ONOFRE NUCLEAR GENERATING STATION, Units 2 and 3; Docket Nos. 50-361, 50-362  
CONFIRMATORY ACTION LETTER; December 5, 2013; MEMORANDUM AND ORDER; CLI-13-9,  
78 NRC 551 (2013)

OPERATING LICENSE AMENDMENT; December 5, 2013; MEMORANDUM AND ORDER;  
CLI-13-10, 78 NRC 563 (2013)

SEQUOYAH NUCLEAR PLANT, Units 1 and 2; Docket Nos. 50-327-LR, 50-328-LR  
LICENSE RENEWAL; July 5, 2013; MEMORANDUM AND ORDER (Ruling on Petition to Intervene  
and Request for Hearing); LBP-13-8, 78 NRC 1 (2013)